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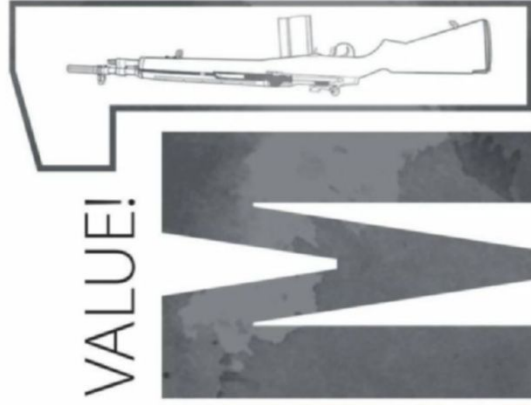
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SPECIAL WEAPONS

For Military & Police

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716 DMR

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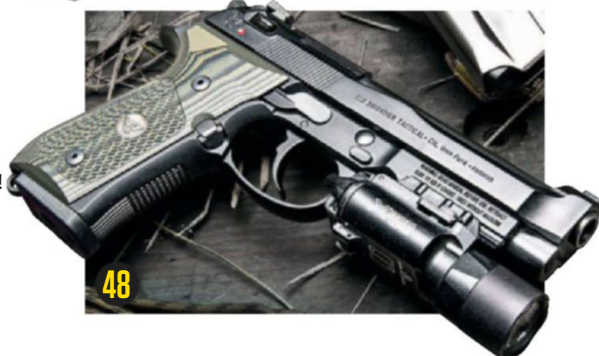
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There is a common misperception that piston-driven ARs just aren't very accurate. If you ask many people familiar with ARs, they'll tell you that a direct-impingement gun can be made to be very accurate, but a piston-operated gun can't. We'll, that may be true in some cases, but Sig Sauer has figured out a way to make a piston gun chambered in 7.62mm NATO as accurate as many precision bolt-action rifles.

What's going on here? Sig Sauer is a bit tight lipped about what exactly the company has done to make the gun as accurate as it is, but I know it has been working on the precision version of the SIG716 for at least three years. I was made aware of the gun when I visited the Sig Sauer factory at the time the 5.56mm piston AR, the SIG516, was introduced (an equally impressive firearm, by the way). Although work was progressing well on the 7.62mm SIG716 Patrol, it had not been completed at that point and the DMR was still in the developmental stages.

SIG SAUER SIG716



Designed for accuracy at longer ranges, the SIG716 DMR is a gas piston AR chambered in the hard-hitting 7.62mm NATO. Sig Sauer ships the rifle with a Harris bipod and two PMAGs. Shown with a Vixen 5-20x50mm scope.

DMR

**PISTON-DRIVEN
DESIGNATED
MARKSMAN RIFLE
LIVES UP TO ITS NAME
WITH SUB-MOA PRECISION!**

BY DOUG LARSON

Photos by Steve Woods

SIG SAUER SIG716 DMR

Gun Details

The SIG716 DMR, or Designated Marksman Rifle, is a good-looking AR with some interesting design characteristics. For one thing, there is no included muzzle device. Instead, the muzzle has 5/8x24 threads and is supplied with a protective screw-on collar. The idea behind it is to make the gun ready for whatever muzzle device the owner wants to install—and there are a lot of options, from flash suppressors to muzzle brakes to sound suppressors. (Incidentally, Sig is now offering its own line of SIG-SD sound suppressors.) For testing, though, I ran the gun with only the protective collar installed.

The match-grade barrel is made of chrome-moly-vanadium steel, a great choice for accuracy. It's cold-hammer forged by Sig Sauer in New Hampshire and is 18 inches long with a 1-in-10-inch

“SIG SAUER has figured out a way to make a piston gun chambered in 7.62mm NATO as accurate as many precision bolt-action rifles.”

twist rate. It's a heavy barrel and is finished with black oxide. Some may complain about the barrel not being longer than 18 inches, but there is a case to be made for the shorter barrel. First, barrel length doesn't have anything to do with accuracy. It can give you a longer sight radius, which helps if the front sight is mounted at the end of the barrel, but that's not an issue with this gun. And for those who might complain about a loss in velocity, realize that only about 25 to 50 feet per second (fps) is lost for each inch of barrel length reduction. So, at the onset, this gun gives up only about 100 fps at the muzzle compared to a 20-inch barreled gun. If the muzzle speed drops from 2,650 fps to 2,550 fps, a 168-grain Sierra MatchKing BTHP projectile loses a small amount of velocity at 800 yards.

The SIG716 DMR has a top Picatinny rail running from the front of the hand-guard, which is about 13 inches long, to the rear of the upper receiver. Attached to it are front and rear flip-up sights that



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ANS124BK10	12	2 3/4"	1325	4	27
ANS12MD10	12	2 3/4"	1300	MULTI*	7

* Multi = .650 round ball, 6X1BK



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SIG SAUER SIG716 DMR



Sig Sauer equips the SIG716 DMR with a handguard that allows the 18-inch barrel to float freely for enhanced accuracy.



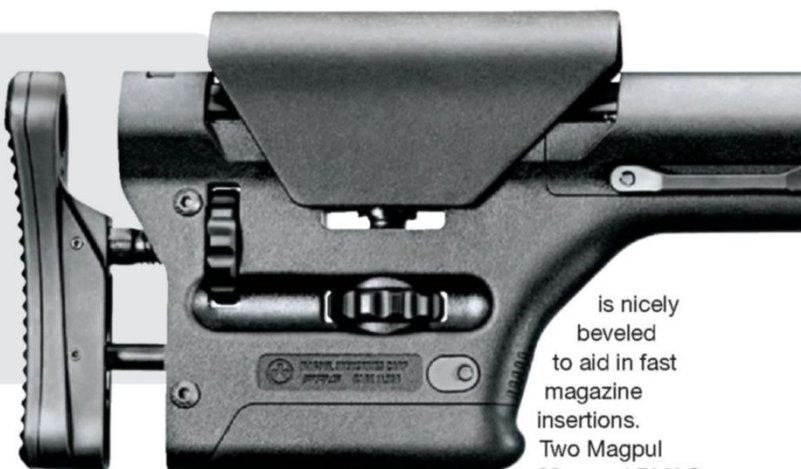
The SIG716 has an ambidextrous magazine release that is protected from accidental activation by a large fence.

are adjustable for windage and elevation. And the rail is integral to the handguard, so there is no worry that the front and rear sight will not be on the same plane. The handguard also has rails at the 3, 6 and 9 o'clock positions along with quick-detach (QD) sling swivel sockets on the left and right sides at the front and rear. There are also QD sling swivel sockets at the rear of the lower receiver.

The upper and lower receivers are made of 7075-T6 aluminum that have been hardcoat anodized black. The upper receiver has the usual bolt forward assist and an ejection port cover. The charging handle is large to facilitate fast cycling. To keep the interface between the upper and lower receivers nice and snug to enhance accuracy, Sig Sauer uses a spring-loaded plunger at the rear of the lower receiver that imparts pressure on the upper when the gun is assembled.

The author's test SIG716 DMR was outfitted with a rugged, collapsible Magpul UBR stock. Current models come equipped with Magpul's PRS stock (right).

The lower receiver has an ambidextrous safety selector—although my test gun, being an early sample, was not equipped with one—and an ambidextrous magazine release. A very large fence surrounds the magazine release to prevent inadvertent activations, and the magazine well



is nicely beveled to aid in fast magazine insertions. Two Magpul 20-round PMAG

magazines were supplied, and during testing they worked perfectly.

The rifle also comes with a Magpul MIAD pistol grip with three interchangeable backstraps and two different frontstraps that allow the shooter to customize it to suit their hand size and preference for finger grooves. It is also textured for slip resistance and has a storage compartment accessed by a bottom cover.

The grip angle is not as pronounced as the A2 grip, making it more comfortable for most users.

A good trigger can do a lot to help accuracy, so Sig Sauer installs a Geissele SSA match unit. It's a two-stage trigger with a smooth take-up, almost imperceptible creep and no discernible overtravel. When I measured the trigger on my test gun before firing, it broke at about 6.5 pounds. After firing about 50 rounds, the break weight dropped to just over 6 pounds. It's a nice trigger. Sig also installed a Magpul triggerguard that provides a little extra room for a gloved finger.

SPECIFICATIONS

SIG SAUER SIG716 DMR

CALIBER:	7.62mm NATO
BARREL:	18 inches
OA LENGTH:	38.25 inches
WEIGHT:	12.3 pounds (empty)
STOCK:	Magpul UBR
SIGHTS:	Flip-up front and rear
ACTION:	Piston-operated semi-auto
FINISH:	Matte black
CAPACITY:	20+1
PRICE:	\$2,799



PERFORMANCE

LOAD	VELOCITY	ACCURACY
Black Hills 175 Match HP	2,591	2.19
Federal Match 175 Sierra BTHP	2,574	0.90
Hornady Match 168 BTHP	2,683	0.55

Bullet weight measured in grains, velocity in fps by chronograph, and accuracy in inches for best five-shot groups at 100 yards.





The lower features Magpul's customizable MIAD grip and enlarged triggerguard.

Sig also chose to equip my rifle with a Magpul UBR (Utility/Battle Rifle) buttstock. It has a fixed comb for a comfortable cheekweld, but can also be adjusted quickly to one of six length-of-pull positions. Though my test rifle came with a UBR, current SIG716 DMRs come with Magpul's PRS stock, which is adjustable for length of pull and cheek height.

Sig Sauer went a step further with the buttstock and replaced the standard UBR rubber buttpad with an enhanced rubber buttpad that absorbs a bit more recoil and provides a little better gripping surface to keep it planted in the shoulder pocket under recoil. Sig Sauer has also added an optional storage compartment that is accessed by a cover on the side. Additionally, the storage compartment can be moved to the other side of the stock if desired.

The buttstock also has QD sling swivel sockets at the front and rear that can be switched easily from one side to the other. Those sockets, combined with the six on the receiver and handguard, provide a wide variety of sling attachment options for the single/two-point sling that is provided with the gun. The sling isn't a flimsy, narrow one either. It's 1.25 inches wide, has plenty of length adjustment and uses quality QD hardware and buckles.

The all-important bolt carrier is made of AISI 8620 steel, and the bolt is manufactured from Carpenter 158 steel. The bolt also has a magnesium-phosphate finish. Dual ejectors kick fired brass clear of the receiver with authority, and the bolt carrier has an integral boss against which the piston rod impinges to send the bolt carrier group to the rear during the cycling process. The boss is not attached with

(continued on page 126)

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COVER: Sig Sauer SIG716 DMR 7.62mm PHOTO: Steve Woods

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TACTICAL FIREARMS PRESENTS SPECIAL WEAPONS (ISSN-1079-4999) is published quarterly by Harris Publications, Inc., 1115 Broadway, New York, NY 10010. Single copy price: \$9.95 in USA, \$10.95 in Canada. Submissions of manuscripts, illustrations and/or photographs must be accompanied by a stamped, self-addressed envelope. The publisher assumes no responsibility for unsolicited material. Copyright 2015 by Harris Publications, Inc. All rights reserved under International and Pan American Copyright Conventions. Reproduction in whole or in part without written permission of the publisher is strictly prohibited. Printed in the USA.

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WEAPONS INSIDER

SEA DEFENDER MACHINE GUN

FN's modular Remote Weapon Station offers withering firepower on target!

BY JACK SATTERFIELD

FN's new Sea deFNder Remote Weapon Station can protect ships at sea from terrorists, pirates and other threats while sailors remain safely behind armor within the craft.



Shipboard defense has always been problematic. In ancient times, triremes and other rowed warships carried decks full of archers and infantrymen to protect their own vessels and board enemy craft after ramming them. In the age of sail, cannons were primarily offensive weapons, but marines and sailors stationed on fighting tops and rigging on the masts fired on enemy deck crews when ships bore close aboard and blasted each other point blank with broadsides. Crews also formed boarding parties to attack adversaries and take their ships.

Layered defenses continued when ships converted from sail to steam and from wooden hulls to iron and steel. Just after the turn of the 20th century, the start of the dreadnaught era, capital warships were designed around large guns intended to disable or destroy opponents of comparable

size and capability in long-range duels. These new battleships and cruisers relied on smaller, faster and specialized war craft, destroyers and frigates designed for anti-submarine warfare and aerial defense, for protection from new maritime technologies—submarines and rudimentary aircraft—that posed unprecedented threats to even the largest ships of the day. By World War II, both submarines and airplanes had advanced so radically that deck-mounted defenses returned to large ships, including the new kings of the fleet: aircraft carriers. Well-preserved WWII-era warships seem almost top-heavy, with defensive batteries ranging from 5-inch, .38-caliber twin turrets to .50-caliber machine guns. Modern naval vessels are much sleeker, but they carry far more effective weapons, including anti-air missiles and, for truly nearby threats, the Phalanx

(continued on page 128)

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UNMANNED AERIAL SUPREMACY

Go behind the scenes to learn more about the U.S. military's advanced unmanned aerial systems!

By Jack Satterfield
DoD Photos

They began service with a pejorative name of “drone,” but have become essential assets for gathering intelligence at every level, from national command authority to the small-unit battle space. Unmanned aircraft systems (UAS), as they’re currently known, have taken on a huge and fast-growing mission burden in several categories of military aviation. Manned reconnaissance flights are becoming rare because UAS can fly longer missions without risking human life. UAS deliver weapons on specific targets with tremendous precision. Unmanned systems are even delivering supplies, eliminating the threats from improvised explosive devices (IEDs) to ground convoys and to aircrews who otherwise would carry materiel to troops on the battlefield.

UAS command and control is also rocketing forward. The Department of Defense defines five levels for Tactical Control Systems (TCSs) ranging from Level 1, receipt of secondary imagery, to Level 5, full control from takeoff to landing. Level 4 controls, operation of satellite UAS from fixed and rotary manned aircraft, are routine today. In addition, the government has established Autonomous Control Levels (ACLs) for information processing ranging from remotely guided (ACL 1) through onboard route re-planning (ACL 4) up through group strategic goals (ACL 9) and autonomous swarms (ACL 10), with top levels reached by 2025.

UAS have proven so successful in military missions that many experts believe the last generation of manned combat

aircraft is now in service. Given advances in flight controls, pilotage systems, weapons and electro-optical/infrared (EO/IR) sensors, the likelihood is that unmanned systems will shoulder all or nearly every traditional combat aviation role in the next few decades. In the near future, “pilots” may well sit at consoles at U.S. airbases while they direct unmanned aerial vehicles throughout entire mission profiles half a world away. In fact, that’s already happening in some cases and may soon be routine on almost every military operation involving aircraft.

A review of the current U.S. unmanned fixed- and rotary-wing fleet demonstrates its diversity, effectiveness and ability to perform a vastly greater array of missions than many of the most advanced manned aircraft are capable of handling today.



K-1200 K-MAX▶

The K-MAX unmanned helicopter is an intermeshing-rotor commercial cargo rotorcraft built by Kaman Aerospace with a Lockheed-developed autonomous pilotage system in service with the Marine Corps' unmanned cargo resupply program. The K-MAX is very efficient, able to lift nearly 6,900 pounds—more than its empty weight—and its intermeshing rotors make it stable in flight. Its cruise speed is 92 mph, and its dual rotors are just over 48 feet in diameter. Used extensively in Afghanistan, the K-MAX proved its capability flying supplies to combat units, avoiding risks to convoys or aircrew. Acquisition plans are still pending. For more information, visit lockheedmartin.com or call 302-478-1583.



Prioria Photo

◀ MAVERIC

Prioria Robotics has produced one of the smallest UAS in military service for the Army since 2008. The Maveric weighs 2.6 pounds, and its carbon-fiber wings and fuselage, both under 30 inches, roll up into a 6-inch-diameter storage and launch tube. It can also be hand-launched. The Maveric's components are modular, enabling it to adapt to a variety of missions. Its electric motor enables flights up to 800 feet above ground level, and it cruises 30 mph up to an hour within a 9-mile wireless range. Its cameras operate day or night and provide a 360-degree field of view. For more, visit prioria.com or call 352-505-2189.

"A REVIEW OF THE CURRENT U.S. UNMANNED FIXED- AND ROTARY-WING FLEET DEMONSTRATES ITS DIVERSITY, EFFECTIVENESS AND ABILITY TO PERFORM A VASTLY GREATER ARRAY OF MISSIONS..."

MQ-1 PREDATOR▶

Produced by General Atomics Aeronautical Systems, Inc. (GA-ASI) and in service with the U.S. Air Force and CIA since 1995, Predator variants are considered a "Tier II medium-altitude, long-endurance unmanned aircraft system (MALE UAS)." It handles reconnaissance and forward observation missions and carries two AGM-114 Hellfire or Griffin missiles. The MQ-1B Block 10 is the current U.S. production aircraft. An export version is pending sale to the Middle East. The MQ-1B is 27 feet long with a 55-foot wingspan and weighs 2,550 pounds loaded. It stays aloft up to 40 hours at 25,000-foot altitudes and cruises at 80 to 100 mph. For more information, visit ga-asi.com or call 858-312-2810.



HIGH-TECH HARDWARE



◀ MQ-8 FIRE SCOUT

The Fire Scout is a four-bladed rotorcraft providing the Navy with recon, fire support and aerial targeting capabilities. Developed by Northrop Grumman, the C-model is derived from a Bell 407 and the B-model from a Schweizer light helicopter. In addition to turret-mounted sensors, it has the ability to carry laser-guided 70mm rockets. It can detect submerged mines in littoral areas. The MQ-8 has operated in the Middle East and Afghanistan and conducted anti-piracy missions off East Africa. The C-model's mission endurance is about 12 hours fully loaded, and its cruise speed is about 155 mph, while the B-model has an endurance of five hours at 198 mph. For more information, visit northropgrumman.com or call 703-280-2900.

MQ-9 REAPER ▶▶

The MQ-9 Reaper/Predator B is a larger version of the Predator, also produced by GA-ASI and designated a long-endurance, high-altitude hunter/killer. It began Air Force service in 2007. It has a 3,850-pound payload, a 27-hour endurance, a cruise speed of 194 mph and a 50,000-foot service ceiling. It can carry Hellfire missiles, laser-guided bombs and the Joint Direct Attack Munition (JDAM) on seven hard points. Several U.S. security agencies and other nations operate Reapers, and the aircraft has a significant and successful recon and attack mission record in Iraq and Afghanistan and many other civil and military operations. For more information, visit ga-asi.com or call 858-312-2810.



"THE HALE SYSTEMS HAVE BEEN IN SERVICE SINCE THE EARLY 2000s. THEY ARE OVER 47 FEET LONG WITH A 130.9-FOOT WINGSPAN..."



◀ RQ-4 GLOBAL HAWK & MQ-4C TRITON

The Global Hawk is the Air Force's high-altitude long endurance (HALE) recon platform, flying over 30 hours at 60,000 feet with cruise speeds in excess of 350 mph. Its synthetic aperture radar and long-range EO/IR sensors can cover 40,000 square miles of territory in a day-long flight. It carries no weapons. The Navy's variant is the MQ-4C Triton, used for maritime surveillance. Built by Northrop Grumman, the HALE systems have been in service since the early 2000s. They are over 47 feet long with a 130.9-foot wingspan and a 32,250-pound gross weight with varying payload weights. For more information, visit northropgrumman.com or call 858-618-4080.

RQ-5 HUNTER ▶

The Hunter is derived from an Israeli Aircraft Industries (IAI) design produced by Northrop Grumman and flown for the U.S. Army. Although slated for replacement, it has remained in service because of its nearly 200-pound payload. It will, however, probably retire soon after a 20-year service life and more than 100,000 flight hours. Launched from a catapult, it utilizes two engines fore and aft on its fuselage. Its wingspan is over 29 feet, with a twin-boom tail. Its service ceiling is about 15,000 feet, with a 12-hour endurance. For more information, visit northropgrumman.com or call 703-280-2900.



◀ RQ-7B SHADOW V2

In service with the U.S. Army, Marine Corps and foreign military forces, the Shadow is produced by Textron Systems Unmanned Systems. Its design and performance parameters are reminiscent of the Hunter, but it's about half the size, with a 20-foot wingspan. It also features an inverted-V "elerudder" and can carry small weapons. The system is equipped with an optical/infrared sensor package as well as communications relay and laser designation systems. It is launched from a catapult and lands on wheels using arresting gear. In wide use, the Shadow has accumulated about a million flight hours in several recent conflicts. Textron Systems is supporting the Army and Marine Corps' fielding of the RQ-7B Shadow Version 2 (V2) starting in 2015. For more information, visit textronsystems.com or call 410-666-1400.

RQ-11 RAVEN ▶

AeroVironment, a leading micro-UAV developer, has produced the Raven for the U.S. and allied forces since 2006. It is a tiny tactical recon platform weighing just over 4 pounds with a 4.5-foot wingspan, and it can fly for about 90 minutes with a 6-mile operational radius at typical altitudes of 500 feet and 25-mph cruise speeds. It carries a CCD (charged-couple device) video camera and an infrared camera for night flights. In the air, the Raven can be remotely controlled or operate autonomously with GPS waypoints. One control panel keystroke aborts a mission and returns the RQ-11 to its takeoff point. For more information, visit avinc.com or call 626-637-9983.



HIGH-TECH HARDWARE

RQ-20 PUMA AE

AeroVironment's Puma is a battery-powered and hand-launched micro-UAS. Its wings unfold to a 9.2-foot span, and it weighs just 13 pounds. It can remain airborne for two hours, and its engine propels it at a 23-mph cruise speed. Its electro-optical/IR camera feeds real-time intelligence to a common control unit, and it can provide controlled surveillance up to 9 miles from its launch point. Obviously low-speed and low-altitude, the Puma has added tactical value to small Army and Marine Corps combat units since 2012 after its development in 2008. For more information, visit avinc.com or call 626-637-9983.



RQ-21 BLACKJACK

A relatively recent Boeing Insitu development for the Navy and Marine Corps to supplement the ScanEagle, the Blackjack handles forward recon missions. It is a twin-boomed, single-engine aircraft that shares the ScanEagle's launch and recovery systems. Larger than the ScanEagle, the RQ-21 has a 16-foot wingspan and weighs 135 pounds. It cruises at 63 mph and can stay aloft for 24 hours. It began Marine Corps service in Afghanistan in 2014, accumulating more than 1,000 flight hours while on deployment. Testing for shipboard operations will lead to its first at-sea deployment in 2015. For more information, visit insitu.com or call 509-493-8600.



RQ-170 SENTINEL

Rarely seen and in Air Force service, Lockheed Martin's Sentinel is a flying-wing design in service since 2007. A big aircraft with a 65-foot wingspan, its service ceiling is 50,000 feet. Detailed specifications aren't available, but it apparently utilizes EO/IR sensors and active electronically scanned array (AESA) radar for both recon and electronic warfare. These capabilities, and other features of this highly classified platform, are speculative. It has conducted numerous operations in Afghanistan and other combat theaters. For more information, visit lockheedmartin.com or call 302-478-1583.



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HIGH-TECH HARDWARE

SCANEAGLE▶

The ScanEagle is a small, low-cost UAS, built by Boeing subsidiary Insitu for the Navy and Marine Corps and allied nations, in service since 2005. It carries day- and night-vision cameras and is catapult launched on land and at sea. Its payload is small—just 7.5 pounds. The ScanEagle's wingspan is 10.2 feet, and it weighs less than 40 pounds. It cruises at 69 mph with a 19,500-foot service ceiling. It has been used extensively in Persian Gulf operations and also has conducted fishery research missions for the National Oceanic and Atmospheric Administration. For more information, visit insitu.com or call 509-493-8600.



◀ STALKER

Lockheed Martin developed the Stalker in 2006 for U.S. Special Operations Command (SOCOM). It is hand-launched, and its quiet electric motor propels it at 50-mph cruise speeds for up to two hours. Its wingspan is 10 foot, and its maximum takeoff weight is 17.6 pounds with a 3-pound payload. Its EO/IR cameras can detect IEDs, and for this important mission both Army and Marine Special Forces have requested Stalkers with longer endurance. Lockheed is also developing a ground-based laser-powered system for the aircraft. For more information, visit lockheedmartin.com or call 302-478-1583.



SWITCHBLADE▶

Developed by AeroVironment for the U.S. Army and Marine Corps, the Switchblade is an expendable, loitering munition for beyond-line-of-sight targets, not a UAS. The system, a mortar-like launching tube and its payload, weighs only 5.5 pounds. The munition vehicle itself can be guided into a target with the same control console used for the RQ-11 Raven and RQ-20 Puma, using its onboard camera. The warhead is equivalent to a 40mm grenade. Its electric engine is quiet and efficient, enabling it to fly into a target without detection. It can also be flown back for reuse if no target is available. For more information, visit avinc.com or call 626-637-9983. **SW**

"THE WARHEAD IS EQUIVALENT TO A 40mm GRENADE. ITS ELECTRIC ENGINE IS QUIET AND EFFICIENT, ENABLING IT TO FLY INTO A TARGET WITHOUT DETECTION."



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DRD TACTICAL PARATUS

TAKEDOWN 7.62MM
offers sub-MOA precision
for covert operations!

BY DAVID BAHDE /// Photos by Sean Utley



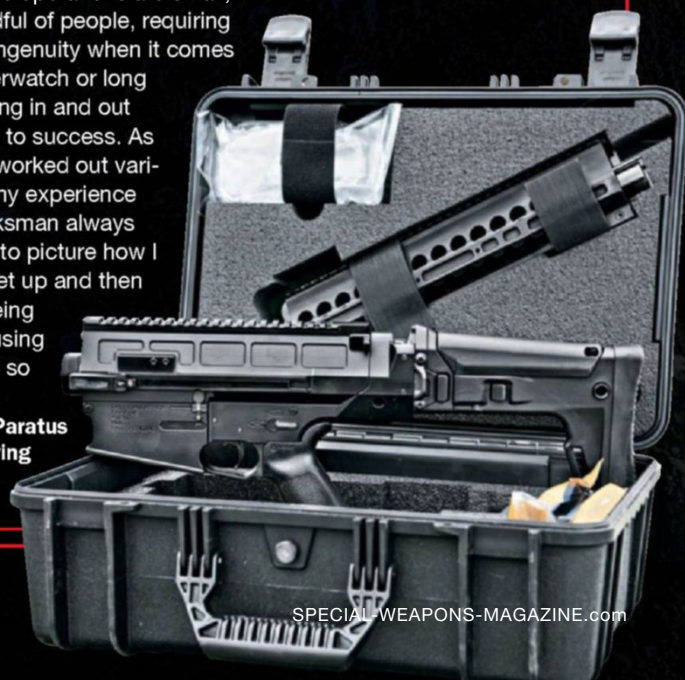
Deploying on a covert operation can be tricky, especially with a long gun. Many instances require accessing areas without

being seen as an officer, soldier or agent. Or, if you're charged with providing cover or support during a dignitary-protection detail, for example, you are not going to be able to run around with a rifle in your hands. In fact, you'll probably have to get in, cover your team and get out without anyone knowing you were there. While some protection details are overt, most are more covert or at least low key. Not all dignitaries have an army of agents flying in ahead of them, or the ability to enlist police

departments for support. I recently attended a dignitary-protection course taught by Solutions Group International that drove this point home.

Many of these operations are small, with only a handful of people, requiring a great deal of ingenuity when it comes to providing overwatch or long gun cover. Getting in and out quietly is critical to success. As we trained and worked out various problems, my experience as a police marksman always crept in—I tried to picture how I would deploy, set up and then leave without being observed or causing alarm. I've done so

Designed specifically for clandestine missions, the Paratus Gen 2 rifle breaks down quickly and fits in a durable carrying case along with ammunition and other accessories.



GEN 2



Fully assembled, the Paratus Gen 2 is a formidable rifle with solid precision, reliability and power to handle many missions. Shown with a Bushnell Elite Tactical SMRS 1-8.5x24mm scope.

“Breaking down into three basic parts, it fits nicely into a 18-by-14-by-7-inch hard case, a backpack or even an attaché case.”



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DRD TACTICAL PARATUS GEN 2



ABOVE: The handguard features lightening cuts as well as a long top rail for mounting sights and night-vision equipment. Side rails can be added for more accessories.

RIGHT: The lower receiver features a Magpul MOE grip with an internal storage compartment. Also note the large safety position markings, which are on both sides.



for a few SWAT operations, and it wasn't easy—and that was on home turf. Doing so on less familiar ground would only compound the difficulty.

It is normally pretty easy to dress to blend in, and concealing sidearms is not very hard. But it can be far more difficult to deploy a precision rifle without being

noticed. Various bags or other containers designed for discreet carry exist, but there are only so many ways you can conceal a precision rifle. The best way is to utilize a takedown or break-down rifle. They have been around for years but have always suffered an issue or two. Bolt-action rifles look very cool when they're taken down

SPECIFICATIONS

DRD TACTICAL PARATUS GEN 2

CALIBER:	7.62mm NATO
BARREL:	16 inches
OA LENGTH:	36 inches
WEIGHT:	9.2 pounds (empty)
STOCK:	Magpul folding
SIGHTS:	None
ACTION:	Direct impingement semi-auto
FINISH:	Hardcoat anodized black
CAPACITY:	20+1
MSRP:	\$6,000



PERFORMANCE

LOAD	VELOCITY	ACCURACY
Black Hills 180 AccuBond	2,400	0.75
Federal 168 Gold Medal Match BTHP	2,505	0.72
Federal 175 Gold Medal Match BTHP	2,440	0.68
Silver State Armory 168 OTM	2,343	0.70
Silver State Armory 175 OTM	2,429	0.60

Bullet weight measured in grains, velocity in fps by chronograph, and accuracy in inches for best-five shot groups at 100 yards.

For easy storage and transportation, the DRD Tactical Paratus Gen 2 comes with a Magpul folding stock that locks solidly in place and works well from any shooting position. The cheek riser is easy to adjust, and the rubber buttpad helps absorb the 7.62mm recoil.

in the movies, but they do not always hold their accuracy, and they suffer the limitations of the manual action and lower capacity. It's nice to have the firepower and rapid target acquisition of a semi-auto, especially in a situation where an ambush might occur. While most of the takedown rifles out there are redesigns of previous platforms, DRD Tactical has built a truly covert takedown rifle from the ground up, and it works well. Designed to meet a government contract, the DRD Tactical Paratus Gen 2 meets all the needs of a truly covert precision rifle.

DRD Tactical bills itself as "tool makers for clandestine missions," and its products clearly meet this description. The company's CDR rifles in 5.56mm and 300 AAC Blackout can be quickly taken apart

and fitted into a hard case, briefcase or other pack. But it's the new Paratus Gen 2 rifle in 7.62mm NATO that'll really get your heart pumping. Fitting into an 18-by-14-by-7-inch case, it really speaks to your inner secret agent.

Gun Details

Developed for the Joint Special Operations Command (JSOC) Concealable Sniper Rifle (CSR) open announcement, the Paratus is a purpose-built suitcase rifle. Breaking down into three basic



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ReVolt

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The 16-inch barrel has 5/8x24 threading, allowing the Paratus Gen 2 to accept a wide range of available muzzle devices.



parts, it fits nicely into an 18-by-14-by-7-inch hard case, a backpack or even an attaché case. In an effort to keep the Paratus Gen 2 more compact, the upper and lower receivers have been designed to use internal return springs, eliminating the buffer tube system. Removing this component allows DRD to use a folding stock, saving several inches of storage space. Adjustable for length of pull and cheek height, the Magpul folding stock makes for a quick and secure fit whether using iron sights, red dots or optics.

The Paratus Gen 2 rifle features an excellent Geissele two-stage trigger. A non-reciprocating, left-side-mounted charging handle provides for smooth and quiet charging. Well suited to prone shooting, the charging handle allows you to operate the rifle without losing your cheekweld. Standard SR-25-pattern magazines can be used, and the lower receiver's controls—the safety, magazine release and safety selector—are in standard AR positions.

The upper receiver includes a proprietary bolt carrier. The takedown process is simple, making cleaning easy, whether on the bench or in the field. The entire carrier and bolt are boron-carbide coated for smooth operation and trouble-free operation in adverse conditions.

DRD Tactical's barrel assembly consists of the barrel, the gas block and tube, and a barrel nut that locks the assembly into the receiver. Available in either 16- or 18-inch lengths, the hammer-forged, chrome-lined barrel features a 1-in-12-inch twist rate and a 7.62mm NATO chamber. The barrel comes with a standard A2-style flash suppressor, and the muzzle has 5/8x25 threading, so it will accommodate other muzzle devices, including sound suppressors. Knurling on the large barrel nut allows for a tight fit without using tools. If necessary, a barrel nut wrench is provided.

Covering the barrel is a proprietary handguard that locks onto the barrel nut

using a pushpin and friction lock. This keeps it in place, yet the barrel remains free-floating. The handguard's top rail mates up with the upper receiver's for one continuous rail for mounting optics, while smaller rails can be added along the forend to accommodate bipods, lights, lasers or other accessories. The entire rifle is hardcoat anodized black, and nickel-boron is available as an optional finish. The Paratus Gen 2 ships in a rugged hard case with two magazines, safety glasses and all the usual instructions and manuals.

Range Time

Since the Paratus was designed as a precision rifle, I needed a good scope to truly test its capabilities. I used a Bushnell Elite Tactical SMRS 1-8.5x24mm scope in an Alamo Four Star mount. This mount has proven incredibly solid and returns to zero very well. This magnification range is perfect for most urban operations and would work well for dignitary protection duties or other covert operations. I also used a SureFire SOCOM762-MINI sound suppressor for much of the testing, as well as a Gem-Tech Sandstorm. For a forward support, I added a Long Range Accuracy (LRA) tactical bipod to the Paratus Gen 2's handguard.

Given its design and intended purpose, the Paratus' accuracy is critical, and my test model delivered. Even with the 1-in-12-inch twist rate, it really liked the 175-grain bullets, but every group measured less than 0.75 inches, with the best group (produced by Silver State Armory's 175-grain OTM) measuring 0.6 inches at 100 yards. Every group was at or under an inch, even with some practice ammunition. This rifle was very accurate, and its consistency was commensurate with a number of bolt actions I've tested.

Cold-bore shots are critical for police marksmen. You generally only get one shot, seldom is the threat static and the available target area is very small. In a dignitary-protection environment, things

ABOVE: To begin the takedown process and remove the handguard, users must simply lift the locking lever and pull out a captured pin.

MIDDLE: Next, loosening the knurled barrel nut allows the match-grade barrel assembly, including the gas system, to be removed with ease.

BOTTOM: Now the rifle can be stowed in its carrying case. Operators can keep their preferred optics mounted to ensure their zero remains the same. Note the left-side-mounted charging handle, which is easy to manipulate.

“DRD TACTICAL has built a truly covert takedown rifle from the ground up, and it works well.”

are going to be a bit more dynamic. Sure, accuracy is still critical, but you are more likely to be focusing on multiple threats. Also, rifles with removable barrels can potentially be less consistent. Even some of my early takedown bolt guns would alter the point of impact each time the barrel was swapped.

To test for this, I fired the Paratus Gen 2 rifle five times at 75 yards from prone using a bag. Rather than shoot for groups, I pressed the trigger as fast as I could after solidly acquiring the target. Then I removed the barrel and reinstalled it, firing another five shots. I did this for a total of 40 shots with both 168- and 175-grain ammunition. All 40 rounds clustered into a group less than 3 inches, which is pretty impressive. This exercise, while not something you'll experience in the field, would've pointed out any glaring problems, and if the Paratus holds its accuracy under these conditions, it will certainly be good to go under real-world conditions in the field.

Final Notes

This Paratus Gen 2 seemed to favor metal magazines, as the bolt failed to lock open on empty PMAGs a couple of times. This did not occur with any of the metal magazines, and the Paratus really liked the magazines from LaRue Tactical. The Paratus Gen 2 also ran rather nicely using X Products' X-25 Skeltonized drum if you are in need of 50 rounds in one sitting. This drum magazine is more compact than you think, and it may not be a bad choice depending on your assignment.

Given its ability to easily accept night vision and any number of scopes, the Paratus Gen 2 is perfect for those covert operations that require more stealth than usual. It will easily fit in a briefcase, tool bag or any number of truly covert containers. Either way, the Paratus Gen 2 is plenty accurate, incredibly versatile and a blast to shoot. For more information, visit drdtactical.com. **SW**

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RUGER AR-556



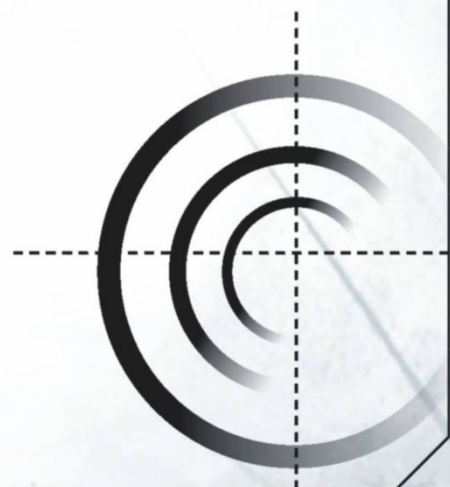
**Battle-ready 5.56mm
patrol carbine cuts costs
WITHOUT LOSING
PERFORMANCE!**

BY DAVID BAHDE ■

One of the most widely fluctuating markets in the gun industry revolves around the AR. Over the last few decades, it has swung back and forth repeatedly. Prior to the 1994 “Assault Weapons” ban, the AR was almost obscure, even in the police market. Restricting their manufacture spiked their sales and brought the AR out into the mainstream, introducing it to the civilian market. Prices soared, with new accessories hitting the market and manufacturers producing “ban-compliant” models to address demand. As the industry adapted to the law, prices eventually settled back down. Rifle prices were pretty steady, almost affordable in some cases, until the next fear of a restriction hit. Our last increase was stratospheric, with prices reaching into the thousands of

dollars, leaving most rifles out of reach. That has settled again, although not nearly as much as in previous fluctuations. Demand remains high for the platform and looks to stay that way with an eye toward affordability.

When Ruger decided to enter the AR market it introduced the SR-556, a piston-driven AR that was downright reasonable in price for the day. Solid, dependable, accurate and reliable, it remains very popular. There are no compromises here—it’s a great rifle. Consistent enhancements have kept the SR-556 series at the top of its game. Still, it is a piston-driven rifle with a retail price tag near \$2,000, which isn’t exactly “entry level” these days. We needed a high-quality AR that was truly reasonable in price with no compromises when it comes to features and quality. Well, Ruger has done it again, this time with the direct-impingement AR-556.





The upper and lower receivers are Type III hardcoat anodized and given traditional AR features, including a dust cover.

Gun Details

Over the years, the gas piston operating system has dominated the tactical market and held a solid position in the civilian world. Piston-driven rifles have their advantages, but they usually have more moving parts, weigh more and cost more. Unless you need the advantages of a

piston system, a direct-impingement rifle is a great choice. Simple and lightweight, they are accurate, reliable and capable of handling what most operators need in an AR. The AR-556 fits this bill perfectly for new buyers on a budget.

The rifle starts with forged 7075-T6 aluminum upper and lower receivers that have been Type III hardcoat anodized for durability. The upper receiver features a cold-hammer-forged, chrome-moly, medium-contour steel barrel. Measuring 16.1 inches long, the barrel has a 1-in-8-inch twist and a 5.56mm NATO chamber with M4 feed ramps. It also has 1/2x28 threading for adding suppressors and comes with a standard flash suppressor.

The upper also features a chrome-plated bolt carrier with a properly staked gas key. A matte black oxide finish on the exterior of the bolt carrier provides corrosion resistance. Built from 9310 steel, the bolt has been shot-peened and mag-

The 16.1-inch barrel sports 1/2x28 threading, and Ruger ships the AR-556 carbine with a highly effective flash suppressor installed.

netic-particle (MP) inspected. The upper includes an ejection port cover, a forward assist and a brass deflector. The front sight is milled with a serrated rear ramp to cut down on glare. This sight sits at the standard A2 height, so it works with any rear sight, and a quick-detach (QD) sling flush cup is included on the bottom—a really nice touch. Ruger also includes a windage-adjustable, flip-up Rapid Deploy rear sight. The A2-style forend, made from heat-resistant, glass-filled nylon, is attached to the upper using a modified delta ring. Simply unscrew the ring and any M4-compatible handguard can be added—no tools are necessary.

The mil-spec, six-position buffer tube holds an M4-style collapsible buttstock. Ruger has also outfitted the lower receiver with an ergonomic pistol grip and an enlarged triggerguard. The single-stage trigger is crisp and predictable, with minimal crunch and creep and no overtravel. It should meet any duty requirements. Shipped in a cardboard box with a foam liner, the rifle comes with Magpul PMAG, a lock and an instruction manual. The quality of my test rifle was apparent immediately after pulling it out of the box. There is nothing about this rifle that screams compromise. In fact, it is as well built as many rifles that cost twice as much.

Range Time

Given this rifle's appeal to first-time users, I tested the AR-556 as it arrived. With the exception of group testing, I used the rifle's iron sights. Most new users cannot afford to add another grand in accessories to their \$749 rifle, officers included. Department-issued rifles are generally bare, often military surplus, and seldom equipped as shown in the media. Most patrol rifles are issued with a sling and a couple of magazines—maybe a light if you are lucky. Officer-purchased rifles are generally just as Spartan, making this test realistic. So, would the AR-556

work for a new shooter, a personal officer purchase or an issued patrol rifle?

I used the iron sights for the initial accuracy evaluation using Federal's 62-grain Tactical Bonded (LE223T3) ammo, a popular duty load. Shooting at 50 yards from kneeling, it was possible to keep everything inside a 6-inch circle. Moving to prone, groups



SPECIFICATIONS

RUGER AR-556

CALIBER:	5.56mm NATO
BARREL:	16.1 inches
OA LENGTH:	32.25-35.5 inches
WEIGHT:	6.5 pounds (empty)
STOCK:	Collapsible
SIGHTS:	Front post, Rapid Deploy rear
ACTION:	Direct impingement semi-auto
FINISH:	Matte black
CAPACITY:	30+1
MSRP:	\$749

PERFORMANCE

LOAD	VELOCITY	ACCURACY
Federal 62 Tactical Bonded	2,850	1.35
Hornady 60 TAP A-MAX	2,670	1.15
Hornady 75 TAP BTHP	2,600	1.25
Liberty 55 Silverado	2,849	1.68
Silver State Armory 64 PPT Bonded	2,848	1.40
Silver State Armory 77 OTM	2,700	1.00

Bullet weight measured in grains, velocity in fps by chronograph, and accuracy in inches for best five-shot groups at 100 yards.



The ergonomic pistol grip features subtle texturing. Also note the AR-556's standard safety/selector.



The included Rapid Deploy rear sight is adjustable for windage and can be folded down, out of the way, if necessary.

were half that size. At typical deployment distances of 25 yards and closer, the AR-556 was as accurate as this platform gets. Within these ranges, these results were quite good for an iron-sighted rifle configured as this one was. It is light, capable and accurate.

Moving to 100 yards, I attached an EOTech EXPS3 for group shooting. This is a very popular sighting system. Silver State Armory's 77-grain OTM ammo created the best group, which was right at an inch. Hornady's 60-grain TAP A-MAX, another solid duty round, produced similar results. Every group was under 2 inches at this range. Comparatively speaking, the AR-556 is as accurate as most stock AR-platform rifles I've tested over the last several years.

Running this rifle hard over the course of a solid day, it never failed. It always worked—in rapid fire, from either side,

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Lightweight, fully ambidextrous stock stands ready to upgrade your tactical AR carbine!

By Michael O. Humphries

New from Command Arms Accessories (CAA) is the SKBS Skeletonized Buttstock. Designed to offer you everything you need and nothing you do not, the lightweight, AR-pattern, collapsible stock is manufactured from tough and durable polymer and is designed to fit on both commercial and mil-spec receiver extensions through the use of an internal compression ring.

The stock weighs in at a mere 10.88 ounces and features a grooved release latch that is easy to employ. A contoured and texturized rubber cheekweld area on the upper face of the stock ensures comfortable and repeatable positioning by the shooter, and a sliding extension pin locking tab can lock it solidly in place to help prevent accidental stock movement. A removable rubber buttpad rounds out the package. For more information, call 866-611-9576 or visit commandarms.com.



"The stock weighs in at a mere 10.88 ounces and features a grooved release latch that is easy to employ."

upside down, in awkward positions, even with a weak shoulder mount. I used Black Hills reloads for most of the testing, and the AR-556 never missed a beat. Nothing during the hard-use testing caused a malfunction. The rifle worked with PMAG, mil-spec aluminum and Lancer magazines, with several duty rounds and FMJ ammunition. It remained accurate throughout. It did get a bit hot under the handguard during sustained fire, but that is normal. Under normal condi-

tions the factory handguards were fine. The AR-556 handled everything thrown at it without a single issue.

Final Notes

The closest I could get to a criticism is the stock. Given the QD mount on the sight base, a matching mount on the stock would be nice. I was also not very fond of the rear sight, but that is a personal preference, and it will work with any AR-style sight. If I were to add a red dot, the rear sight is fine. As a standalone unit, I'd probably replace it. However, Ruger's front sight is excellent. The grip was great, the trigger was fine, and it handled well. At just a tad over 6 pounds, the carbine was light, handy and easy to use.

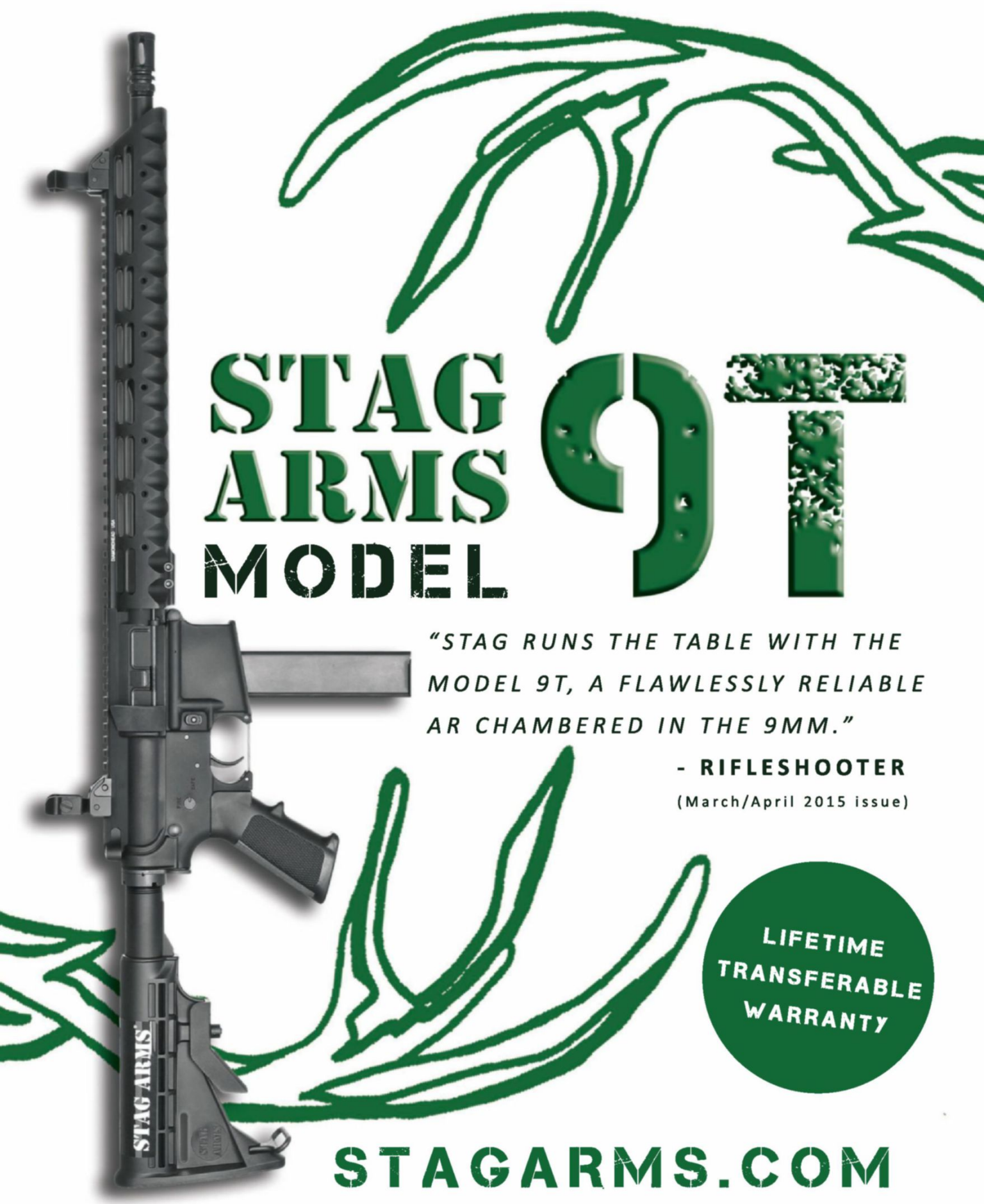
If you're looking for an entry-level AR, there's no reason why you shouldn't buy

this rifle. It will work as is, or as a base for a build. Short of piecing together a gun in your garage with cheap parts, you cannot match the price with anything approaching the same quality, let alone Ruger's warranty. For those looking to purchase an AR carbine, it does not get better: It's reasonably priced and built in the United States with a warranty.

Ruger's AR-556 is a true game-changer. Consumers still want ARs—they just are not interested in selling their cars to get them. The average buyer has been clamoring for a factory-built, American-made AR at a good price, and the AR-556 fits that definition perfectly. The gauntlet has been thrown down; it will be interesting to see if other gun companies can meet the challenge. For more information, visit ruger.com. **SW**

The rear face of the A2-pattern sight tower features serrations to reduce glare. The AR-556 rifle also comes with a heat-resistant handguard made from glass-filled nylon.





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FRONTLINE WAR HAMMERS

By Jack Satterfield
Photos Courtesy Manufacturers

The most capable grenade launchers deliver the thunder in battle around the world!

As early as the 8th century, soldiers in the Byzantine Empire learned to throw Greek fire, an incendiary chemical mixture whose composition is lost to history, in small pots with lit fuses that ignited the contents. Iron grenades first appeared in Europe in the 15th century, using burning wicks or fuses to set off densely packed blackpowder contents. The grenadier badge, showing flames emitting from a small spherical bomb, is an accurate representation of the inherently hazardous operation of hand grenades. Despite slight improvements in grenade and fuse designs, including the Civil War-era Ketchum device that used a plunger to detonate a percussion cap in the powder charge and a tail fin to ensure the plunger hit the ground when thrown, the dangers of grenades made them essentially obsolete by the turn of

the 20th century. Modern fuses, similar to those in use today, that made grenades safe to carry and operate brought the weapons back in World War I. Still, grenade effectiveness was limited to the distance it could be thrown by an average soldier—about 100 feet. Furthermore, the grenade had to be lightweight. A larger, heavier device was unwieldy with a shorter throw range.

The solution to this problem was the grenade launcher, with ranges far greater than the human arm. Russia originated several devices as early as World War I, most of which used blank rounds to propel grenades several times farther than throwing range. The Japanese created tube-launched grenade dischargers, commonly called “knee mortars” in World War II, and developed sophisticated grenades that could be adapted for throwing, rifle launching or firing

from discharger tubes. The U.S. developed the M7 grenade launcher in 1943. The M7 followed the Russian approach, using a tube attached to the M1 Garand barrel and launching cylindrical rifle grenades with blank rounds, usually fired with the stock on the ground because of its considerable recoil. Grenades fired from the M7 could reach out to approximately 380 yards.

Grenade launchers have evolved considerably since World War II. Today, military forces employ everything from old-fashioned muzzle-fired devices to attached or standalone launchers, single- and multi-shot, automatic and rocket-propelled weapons. Grenades also have improved over time, with far more lethal performance and flexibility. The following survey of these systems demonstrates the wide variety of this venerable, proven infantry weapon.

GLX 160 A1

Marketed by Beretta Defense Technologies, the GLX 160 A1 single-shot grenade launcher can be mounted to the ARX160 family of rifles or used as a standalone unit. The single-shot launcher is fully ambidextrous, weighs only 2.2 pounds, fires 40x46mm ammunition, and is made from aluminum and high-resistance polymer. The result is a powerful yet lightweight grenade launcher. The barrel assembly slides forward for loading. For more information, visit berettadefensetechnologies.com.



GP-34

Russia's Izhmash produces a variety of weapon systems, from AKs to grenade launchers. The GP-34 is the latest upgrade in a series of under-barrel, single-shot grenade launchers deployed in 2009. Designed to fit any Kalashnikov rifle with no modification, it fires VOG-25 40mm grenades, available in both fragmentation and "bouncing" variants as well as non-lethal types, loaded into the launcher's muzzle. Earlier versions of the weapon include the GP-25 and GP-30, introduced in the early 1970s. About half a dozen nations, most former Warsaw Pact members, use these weapons. For more information visit kalashnikovconcern.com.



K11

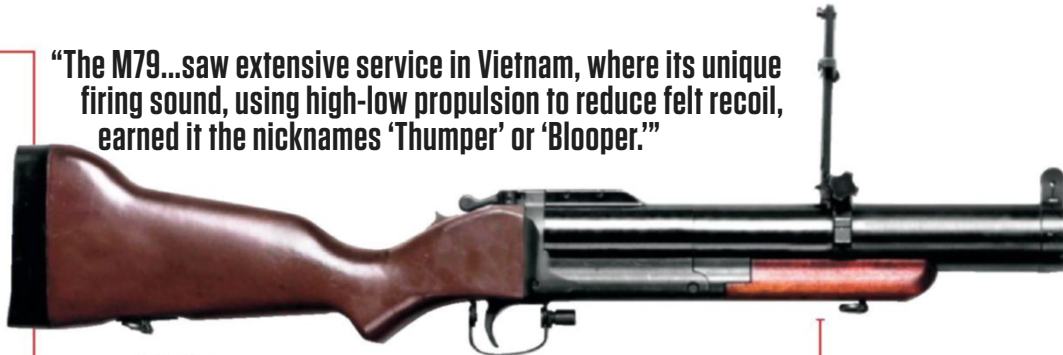
The South Korean Army issued the S&T Daewoo K11 Dual-barrel Airburst Weapon (DAW) to its troops in 2010. Initial issues halted production and led to a redesign, but an improved weapon will continue service. The K11 combines a 5.56mm assault rifle with a top-mounted launcher firing 20x30mm grenades that detonate on impact or can be programmed for bursting in air near targets to spread lethal fragments over trenches, around walls or in buildings. The United Arab Emirates is currently testing the weapon. For more information, visit sntdaewoo.com.



"The M79...saw extensive service in Vietnam, where its unique firing sound, using high-low propulsion to reduce felt recoil, earned it the nicknames 'Thumper' or 'Blooper.'"

M79

Developed by the U.S. Springfield Armory in 1961, this single-shot, break-action, shoulder-fired design resembles an oversized sawed-off shotgun. The M79 and its 40x46mm grenade round saw extensive service in Vietnam, where its unique firing sound, using high-low propulsion to reduce felt recoil, earned it the nicknames "Thumper" or "Blooper." It could fire explosive, smoke, illumination and close-range rounds containing flechettes or pellets as well as non-lethal gas, sponge or rubber-pellet shots for crowd control at ranges to 380 yards. More than 40 nations adopted the M79, and some still use it.



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DoD Photos



M203

The U.S. adopted an alternative to the large, heavy M79 in 1969 in the M203. M203s are firing tubes with trigger mechanisms that attach under the barrel of M16 rifles or M4 Carbines. The tube slides forward for loading and unloading. The M203 uses the same grenades as the M79 and serves in nearly 50 countries. It is slated for replacement in the U.S. Army by the M320, derived from the Heckler & Koch AG-C, although other American forces will keep it in service. For more information, visit colt.com or call 800-962-2658.



"The M203 uses the same grenades as the M79 and serves in nearly 50 countries."



DoD Photo

M320

The M320 Grenade Launcher Module (GLM) is the latest U.S. Army model, initially fielded in 2009. It incorporates several system improvements, including a day/night sight and the capability to operate attached to the M16 rifle or M4 Carbine or as a standalone weapon with the installation of a folding stock. Derived from the Heckler & Koch AG-C with several changes (including a folding foregrip for standalone operation), the M320 fires standard 40mm grenades and can also accommodate longer rounds. At least eight nations use derivatives of this weapon. For more information, visit hk-usa.com or call 703-450-1900.

MK 13 EGLM

Part of the SCAR family of weapons systems, the FN MK 13 EGLM (enhanced grenade launcher module) is designed to connect to the SCAR MK 16 and MK 17 weapons or function as a standalone unit. It is constructed of steel, aluminum and polymer for light weight and rugged strength. The single-shot MK 13 EGLM features a automatic ejector system for rapid ejection of fired cases and ambidextrous controls. Barrels swivels to the right or left for ease of loading. For more information, visit fnhusa.com or call 703-288-3500.



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MULTI-SHOTS

DP-64

This unusual Russian weapon, made by the V.A. Degtyarev Plant, was introduced around 1990 specifically to protect moored submarines and dockyards from combat swimmers. It is configured like an over/under shotgun with a side-opening breech for loading and unloading as well as a pistol grip and foregrip. The DP-64 utilizes 45mm shells that operate much like miniature depth charges, programmed to detonate underwater to destroy submerged targets. It also fires smoke grenades to mark locations of suspected swimmers. The weapon has been reported on board Russian submarines and patrol craft but apparently has not been marketed for international use. For more information, visit zid.ru/eng.



MGL

South Africa's Milkor Multiple Grenade Launcher (MGL), also known as the Y2, began production in the early 1980s and remains in service today. The Milkor MGL has been exported to or copied by more than 50 nations over the years. It is the first mass-produced multi-shot launcher, firing six 40mm grenades from a rotating, manually cranked, spring-loaded cylinder like a revolver, with the ability to fire six shots in three seconds. Variants of the weapon can accommodate both low- and medium-velocity rounds with a maximum effective range of nearly 900 yards. In addition, a non-lethal model is available that can only fire riot-control rounds. For more information, visit milkor.net.



PAW-20

Another South African weapon, marketed by DENEL, is the Personal Assault Weapon (PAW). It is a shoulder-fired, semi-auto, gas-operated grenade launcher firing 20mm high-explosive and incendiary shells from a seven-round box magazine. The barrel and receiver assembly move in the weapon's composite housing to reduce felt recoil. The PAW-20's trigger mechanism is on the receiver's right side, so left-handers cannot fire it. The 20mm rounds are relatively high-velocity for grenades, and they can reach area targets more than 1,000 yards distant, although point or protected targets are probably vulnerable only at closer ranges. For more information, visit pmp.co.za.



"caseless" 40mm rounds utilized in the GP single-shot launcher series. The double-action trigger mechanism permits two shots per second, a formidable rate of fire. The RG-6 design derives from the South African Milkor MGL, and it saw extensive use in the First and Second Chechen Wars. For more information, visit kpbtdla.ru/en.

RG-6

The Russian RG-6, introduced in the 1990s, was designed to increase infantry firepower in urban combat environments. It is a six-shot system utilizing a large, spring-loaded, revolver-like cylinder that fires the same

XM25

The newest entrant in the field is the U.S. XM25 Counter-Defilade Target Engagement (CDTE) System. Derived from the now defunct XM29 Objective Individual Combat Weapon (OICW) that combined a 20mm grenade launcher and 5.56mm assault rifle, the XM25, known as the Individual Semi-automatic Air Burst System and nicknamed the "Punisher," enters service in 2016. It fires 25mm programmable grenades that can be set to explode in mid-air over or near defiladed targets with a laser rangefinder and an integrated computer. The Punisher uses a four-round box magazine, and its maximum effective range for area targets is 765 yards. For more information, visit atk.com.



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AUTOMATICS

AGS-30

Another weapon designed to answer unconventional warfare threats, the Russian fully automatic AGS-30, adopted by the Russian Federation in 2002, fires 30mm GPD-30 grenades in 30-round linked belts. Its fully loaded weight is just over 66 pounds, so it can be carried by one operator. Firing is controlled by a trigger built into the weapon's tripod, although the AGS-30 is more likely to be mounted on vehicles. The Russian AGS-30 can fire up to 400 rounds per minute, and it has a maximum effective range up to 2,500 yards. For more information, visit kpbtula.ru/en.



GMG

The Heckler & Koch *Granat-machinengewehr* (grenade machine gun or GMG) is a belt-fed, fully automatic, 40mm launcher in production since the mid-1990s. It is in wide use around the world, adopted by at least 15 nations, mostly, but not exclusively, NATO members. Even the U.S. Special Operations Command



“Linked ammo belts accommodate 32 rounds with a 350-rpm rate of fire and an effective range of about 1,800 yards.”

utilizes the GMG. It is a relatively large and heavy weapon, so it is usually mounted on vehicles. Linked ammo belts accommodate 32 rounds with a 350-rpm rate of fire and an effective range of about 1,800 yards. It can be loaded and fired from either side, adding to its mounting versatility. For more information, visit hk-usa.com or call 703-450-1900.

Howa Type 96

Japan operates the Howa Type 96 automatic grenade launcher (AGL), in service since 1996. It complements the Japanese Sumitomo Type 62 7.62mm and M2HB .50-caliber machine guns. It is used exclusively by the Japanese Ground Self-Defense

Forces, both by infantry and on armored vehicles, and is not exported. The 40mm weapon fires up to 350 rounds per minute with a maximum effective range of about 1,800 yards. Its belt magazine, housed in an ammunition box attached to the left side of the AGL receiver, holds 50 rounds. For more information, visit howa.co.jp/en.



MK 47

The General Dynamics Mk 47 looks like a tripod-mounted, belt-fed machine gun on steroids. An outgrowth of the Mk 19 in service since 1968, it can launch both conventional and “smart” grenades programmed to detonate at distances set in the day/night Lightweight Video Sight system. Using 32- or 48-round belts, the Mk 47 can fire up to 300 rounds per minute, and effective range of projectiles is in excess of 1,800 yards for area targets. The entire system weighs just under 40 pounds and the weapon, widely used on vehicles, can be mounted on turrets, pedestals or tripods. For more information, visit gdl.com or call 586-825-4000.



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ROCKET-PROPELLED

RPG-7

The RPG-7 is the most widely used grenade launcher in the world. Frequently called a rocket-propelled grenade, its Russian name, *Ruchnoy Protivotankovyy Granatomyot*, means “handheld anti-tank grenade launcher.” Its projectiles are used in both anti-armor and anti-personnel roles. The reusable launching tube is propped on the shooter's shoulder, aimed through a simple sight, and it fires a variety of projectiles (40mm to 105mm) with a gunpowder charge until the grenade's rocket engine ignites and propels it to a target. It is loud, smoky and slow, with a limited effective range of about 220 yards, but it is exceedingly deadly. For more information, visit [Bazalt at bazalt.ru/en](http://bazalt.ru/en).



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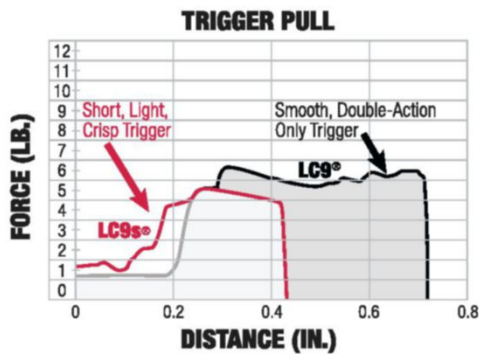
RPG-26

Another Russian product, the RPG-26 is a disposable anti-tank rocket launcher, 30 inches in length, similar to the U.S. LAW. It fires a 72.5mm, shaped-charge warhead that can penetrate more than 17 inches of armor plating or 38 inches of concrete. In service since the mid-1980s with the Russian Ground Forces, its effective range is about 275 yards. A variant can fire a thermobaric warhead that uses oxygen in surrounding air to intensify its explosive force and produce a stronger blast wave. Although the RPG-26's range is shorter, this weapon is optimized for bunker busting. For more information, visit Bazalt at bazalt.ru/en. **SW**



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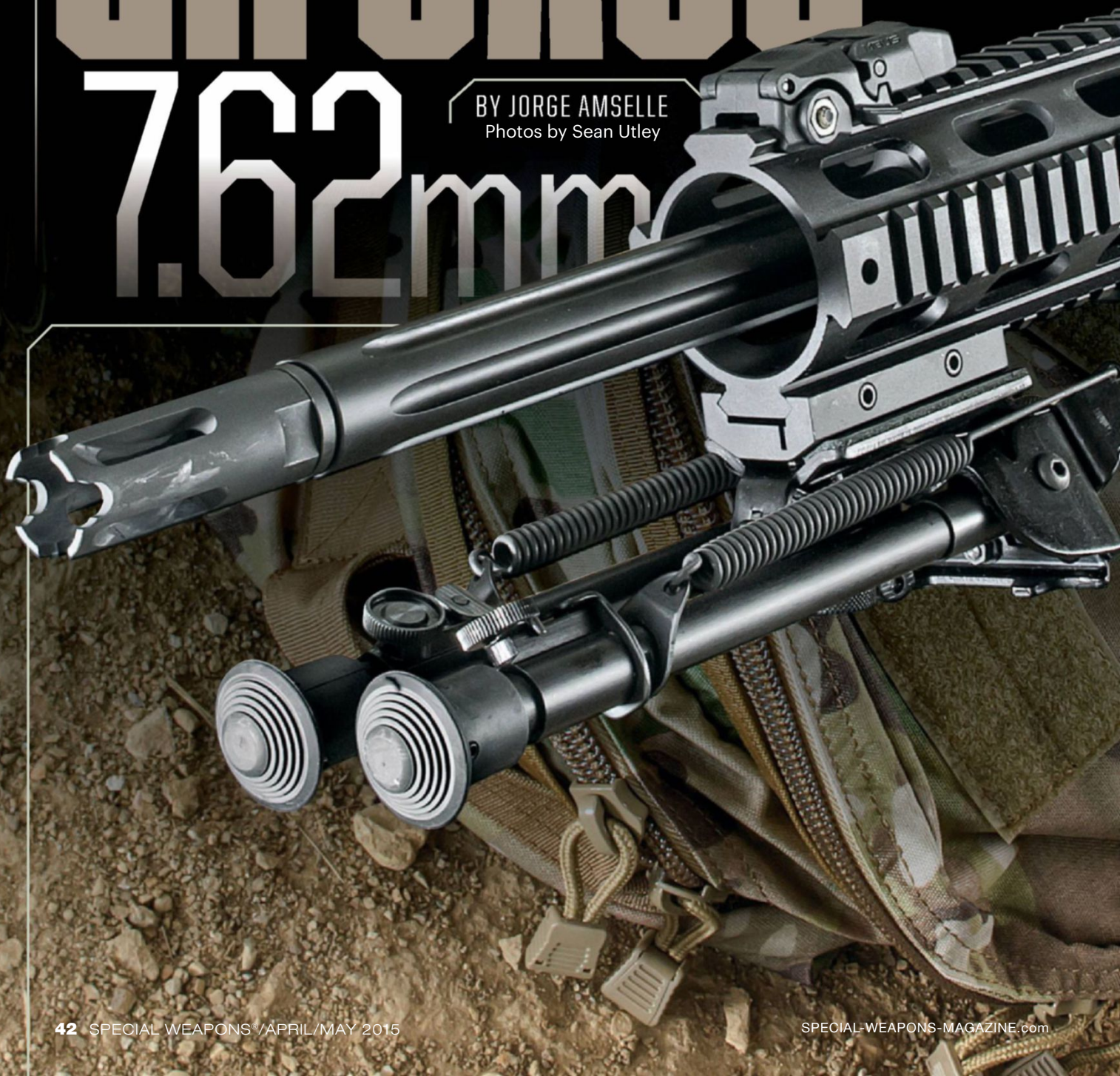
GUN TEST

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SEMI-AUTO
COUNTERSNIPER BORN
FOR SUB-MOA PRECISION

DPMS GII SASS

7.62mm

BY JORGE AMSELLE
Photos by Sean Utley





DPMS spent years developing its GII rifle series, redesigning every component for enhanced precision and reliability. Shown with a Bushnell DMR 3.5-21x50mm scope and a Harris bipod.

DPMS, also known as Panther Arms, like many AR manufacturers has been producing and selling .308/7.62mm NATO-chambered ARs for many years now. These have proven to be very popular among sport shooters, hunters and law enforcement officers already familiar with the AR's system of operation and desiring something with the increased punch and performance of the larger 7.62mm NATO round.

A tactical countersniper version of the DPMS 7.62mm AR called the SASS (which is an homage to the U.S. government's "semi-automatic sniper system" program) has been available for many years and continues to be sold. According to the company, the winner of the sniper

competition in the 2012 Can-Am Police-Fire Games used this rifle. However, now those interested in high performance and super-accurate semi-automatic firepower have a brand-new rifle to consider, the DPMS GII SASS.

GII Platform

Most 7.62mm ARs are simply beefed-up versions of their 5.56mm cousins, but the GII is a very different animal. DPMS spent more than two years developing the GII, offering only fleeting glimpses of its work in progress to a few of us sworn to secrecy, and the end result was worth the wait. This rifle represents a game-changer in this market and features unique innovations and design differences that distinguish it from all other 7.62mm ARs.

This rifle was designed to maximize parts compatibility between it and a standard 5.56mm AR so that the aftermarket accessories already available could be readily used on the new rifle.

In the design process, the GII was made much lighter than other 7.62mm ARs and smaller while drastically improving its functioning and reliability. The new rifle will accept all standard AR pistol grips and fire control groups. It will accept most standard two-piece 5.56mm AR handguards and many free-floating 5.56mm handguards as well thanks to a new barrel nut system. Also, the buffer tube is standard for any AR and will accept any aftermarket stock.

The upper and lower receivers are shorter and narrower than those for many

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DPMS GII 7.62MM



The upper and lower receivers have been redesigned, making them smaller and lighter and providing maximum parts interchangeability with 5.56mm ARs.

other 7.62mm AR rifles. In fact, they are only half an inch longer than a 5.56mm AR and more than half an inch shorter than DPMS' older LR-308 rifle. The height of the flattop upper receiver is identical to a 5.56mm AR so you can use standard AR backup sights without having to adjust them. The forged upper and lower receivers are made from 7075-T6 aluminum with a Type III hardcoat anodized and Teflon-coated finish that comes across as very smooth. All of the sharp edges on the receiver have also been smoothed for a comfortable feel.

The lower receiver also has an integral, enlarged triggerguard that makes it easier to use the rifle with gloved hands. The magazine well has been aggressively beveled to help speed up magazine changes, and the rifle will accept 7.62mm Magpul PMAGs. The front of the magazine well has horizontal serrations to provide a firm grip for those who use the magazine well as a forward grip.

The flattop upper receiver has a lengthened ejection port for more reliable ejection. This is combined with a longer dust cover to keep debris out of the action when not in use and a newly redesigned shell deflector with a concave face that catches spent brass and rotates it out of position for enhanced functioning. You also get a fully functional forward assist that helps greatly in chambering recalcitrant rounds. The charging handle was also redesigned and re-forged with a thicker section at the front, where breaks are most likely to occur. This provides a 45-percent increase in strength to prevent failures or malfunctions.

While externally the DPMS GII is already impressive enough, the real engineering work and innovation can be found



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The Magpul PRS buttstock allows the user to adjust the comb height and length of pull by 1 inch using machined-aluminum rotating knobs that stay in place with positive locking detents. The stock also offers a hook for the support hand for extra stability. The cover can be removed from the bottom of the stock to reveal a short Picatinny rail.



The custom two-stage trigger befits a true precision rifle. On the test rifle, the first stage weighed 1.75 pounds and the second stage measured 4.5 pounds.

inside. The bolt carrier group is unlike any I have seen on other 7.62mm ARs. First, DPMS has reduced the overall mass of the bolt carrier group so that it has the same diameter as a standard 5.56mm bolt carrier group. The bolt carrier group has a monolithic gas key that, instead of being staked on, is forged as part of the bolt carrier group, making the part much

stronger. The gas key has a removable extension for the gas tube as well, with an optimized gas ring to eliminate gas leakage during operation. A titanium firing pin is also included in the design.

The reduced-diameter bolt carrier group is made possible by a newly redesigned bolt. The bolt face has rounded locking lugs instead of the usual squared-

off ones. This significantly increases the lockup strength, which allows for a lower-mass bolt carrier group. The internals of the bolt have also been radically improved with dual ejectors. These reduce spring fatigue and provide a redundant ejector system, increasing reliability and extending the lifetime of the parts.

DPMS has also created a more reliable

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“THIS IS THE FIRST RIFLE I HAVE TESTED THAT ACHIEVED SUB-MOA RESULTS WITH EVERY LOAD I USED.”



The new DPMS GII SASS weighs 30-percent less than its predecessor but manages to produce less perceived recoil thanks to the innovative new design.

and stronger extractor using an undischarged proprietary material. This was paired off with a new elastomer extractor spring that improves the functioning of this part and extends its operational performance. DPMS tested this new system by firing thousands of rounds with no failures of any sort while subjecting the new materials to a wide variety of solvents and cleaners as well as temperature extremes from -60 to 650 degrees Fahrenheit.

In order to improve functionality with all types of ammunition, DPMS installed

a steel feed ramp in the GII. This allowed for changes in the barrel extension to make it and the receiver both lighter and smaller, which in turn is what allows the maximum compatibility with 5.56mm AR handguards and parts.

The rifle as a whole is indeed very lightweight for a 7.62mm AR, and when I first picked it up, it felt very similar in weight and dimensions to a 5.56mm AR. In fact, the standard DPMS GII weighs only 0.75 pounds more than a comparable 5.56mm AR, and yet, despite the reduced weight, DPMS claims it produces less recoil than other 7.62mm ARs.

GII SASS Details

I had the chance to shoot the GII SASS before its formal introduction at various long ranges and found it extremely accurate

and very soft shooting for a 7.62mm AR. This was especially impressive given that the new SASS weighs a few pounds less than the old one. Its accuracy is made possible thanks to an 18-inch, heavy-contour, fluted, 416 stainless steel, Teflon-coated, match-grade barrel with a 1-in-10-inch twist rate. It remains free-floating thanks to the quad-rail handguard. The barrel is topped off with a removable Panther flash suppressor that is extremely effective.

The Teflon coating provides superior corrosion resistance and a matte black finish while the fluting on the barrel reduces weight and adds structural rigidity, actually strengthening the barrel. Fluting also increases the surface area of the barrel, which means it will cool faster than a standard barrel. The rifle also features a mid-length gas system.

The quad-rail, free-floating handguard is made from one piece of 6000 series aluminum with a T6 heat treatment, and it features large cooling vents along its length. It will likely seem oversized to those accustomed to more svelte designs, but it is very sturdy and offers a significant amount of retail space along its 12-inch length for adding bipods, lasers, lights and optics, including night-vision devices mounted in front of standard optics. The SASS comes standard with rail covers for improved comfort and a pivoting and height-adjustable Harris bipod that neatly folds out of the way for transport.

The rifle also features an ergonomic, black polymer Panther Tactical pistol grip with an ample palm swell and



The 18-inch, heavy-contour, 416 stainless steel, Teflon-coated, match-grade, fluted barrel has a 1-in-10-inch twist rate.

SPECIFICATIONS

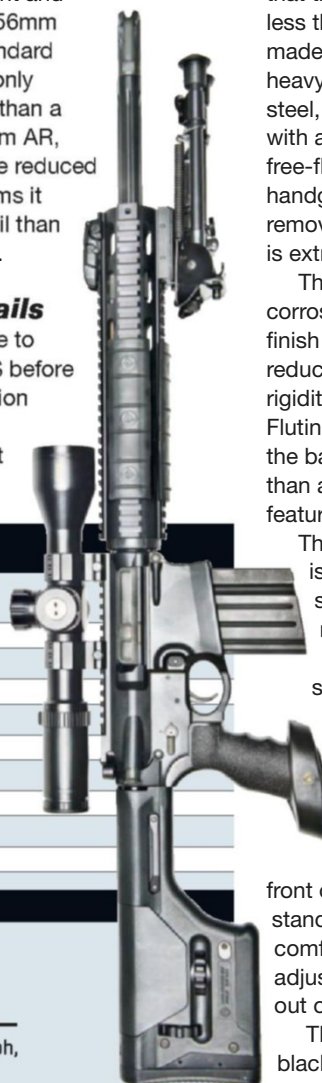
DPMS GII SASS

CALIBER:	7.62mm NATO
BARREL:	18 inches
OA LENGTH:	39 inches
WEIGHT:	10.5 pounds (empty)
STOCK:	Magpul PRS
SIGHTS:	Magpul MBUS
ACTION:	Direct impingement semi-auto
FINISH:	Matte black
CAPACITY:	20+1
MSRP:	\$2,379

PERFORMANCE

LOAD	VELOCITY	ACCURACY
Black Hills 168 BTHP	2,432	0.90
Federal 150 Partition	2,668	1.00
Speer 150 GDSP	2,639	0.96

Bullet weight measured in grains, velocity in fps by chronograph, and accuracy in inches for best five-shot groups at 100 yards.



aggressive texturing. It also has a distinct palm shelf at the bottom that is height adjustable for a customized fit to align the hand and firing finger with the trigger and provide improved comfort during long-term use.

DPMS also added the Magpul PRS rifle stock. The user can adjust the comb height for perfect eye alignment with a given optic as well as the length of pull, which can be adjusted by 1 inch. Both function without tools using machined-aluminum rotating knobs that stay in place with positive locking click detents even under tough field conditions and repeated recoil. This polymer stock includes an aluminum buttplate with a rubber buttpad and reversible sling attachment points. At the toe of the stock there is also a removable cover that reveals a length of Picatinny rail for accepting a rear monopod.

As a designated precision rifle, the SASS is meant to be used with optics, but as a tactical rifle it is also equipped with Magpul folding front and rear backup sights. DPMS has also installed an extended tactical charging handle latch that helps with bolt manipulations when a larger scope is mounted.

The trigger has also been significantly upgraded from a standard AR unit as befits a true precision rifle. Instead of the traditional military single-stage trigger, you get a custom two-stage match trigger. The first stage on my test rifle weighed 1.75 pounds and the second stage was 4.5 pounds. The trigger was extremely crisp with no creep or overtravel.

Range Time

On the range, the GII SASS performed flawlessly with zero malfunctions over two days of shooting with no maintenance performed in between. The recoil was very comfortable, and the accuracy was excellent. This is the first rifle I have tested that achieved sub-MOA results with every load I used. I shot the GII SASS for accuracy at 100 yards from a stable benchrest using the Trijicon TR20-2 AccuPoint 3-9x40mm scope with a mil-dot crosshair reticle.

The new GII series of 7.62mm ARs from DPMS have been nothing but outstanding in every way during my testing, and the company truly invested the time and innovation to develop what I believe could be the standard for measuring all other ARs in this chambering. For more information, visit dpmsinc.com or call 800-578-3767. **SW**

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"Starting at 10 yards and shooting off-hand, the Brigadier Tactical produced a 15-round group that measured less than an inch."

The Beretta 92-based M9 series of pistols has a hard-earned reputation for quality. Battle proven in numerous conflicts since its adoption in the 1980s, this is a design that has "been there and done that." As a result, it can serve as a terrific platform for customization and enhancements. With a foundation this solid, the results of high-quality custom work can only be exemplary (with the right choices regarding enhancements and modifications, of course).

Wilson Combat is well known for its custom firearms. The company has been building some of the finest 1911 pistols, 870 shotguns and AR-platform rifles for a long time. Much of its success stems from founder Bill Wilson's uncompromising attitude and

unwillingness to conform. And, as a staunch supporter of the military and law enforcement professions, Wilson is well respected by some of the best operators around. Many of those training our most elite forces are his friends and colleagues. When those trainers and operators asked him to build an enhanced Beretta 92, he listened. He has collected Berettas for years, and he likes the platform, so why not?

Some months ago I tested several Wilson Combat-customized Beretta 92 pistols during a media event and hog hunt held at Bill's Circle WC Ranch in Texas. In short, the pistols were impressive. Having carried a Beretta 96 years ago as a duty pistol, I thought the enhancements were well thought out, functional and well done. Wilson's customization options are pretty impressive, but everyone in attendance

92G BRIGADIER TACTICAL 9MM

By David Bahde

WILSON COMBAT



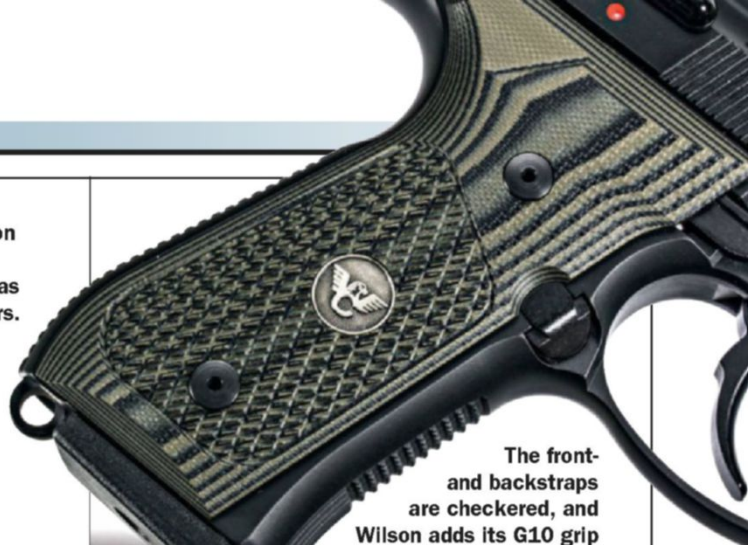
Wilson Combat's 92G Brigadier Tactical is a custom-grade 9mm ready for duty right out of the box. Shown with a SureFire X300 Ultra.

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extreme duty
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accuracy!

92G BRIGADIER TACTICAL 9MM



The Brigadier Tactical features a match-grade "Elite" barrel, a Trijicon front sight and a Picatinny rail for adding accessories such as lights and lasers.



The front- and backstraps are checkered, and Wilson adds its G10 grip panels for a sure firing grip.



Wilson Combat equips the 92G Brigadier Tactical with an ambidextrous decocker. The serrated, spring-loaded levers snap back into position after being applied.

clamored for a "stock pistol" with the most critical options already installed. Now Wilson Combat has come through with its Beretta 92G Brigadier Tactical series. These are factory-made pistols configured for hard use with Wilson Combat parts and available at a very reasonable price.

Gun Details

The Wilson Combat/Beretta 92G Brigadier Tactical is an all-metal pistol starting with a modified M9A1 frame with an accessory rail and a rounded trigger-guard. The front and backstraps are checkered for a solid grip. Wilson Combat G10 grip panels further enhance your hold in any condition.

Long a favorite among Beretta 92 users, the pistol features a heavy-duty Brigadier slide that is mated to the frame. The slide houses an "Elite"-style, match-grade stainless barrel with a recessed target crown. Dovetailed into the slide are a Trijicon front sight and Wilson's Battlesight rear. Tritium allows for low-light use, while a white ring around the tritium facilitates daylight shooting. The rear sight features a "dish" that facilitates fast targeting without sacrificing accuracy.

Rather than a decocking/safety system, the Wilson 92G has decocking-only ambidextrous levers that snap back up

when applied; there is no manual safety. The Brigadier Tactical is also fitted with Wilson Combat's steel guide rod, which ensures solid operation and enhanced performance. A "D" hammer spring is installed, lightening the trigger for smooth double-action (DA) and single-action (SA) pulls.

Finally, the Brigadier Tactical is coated in Beretta's black Bruniton finish, which protects against hard use. Wilson Combat logos, along with special serial numbers, make it clear that this is a special run of 92G pistols.

Range Time

Optimized for tactical or competitive use, I tested this pistol as if it were going to work with a police officer. Early in my LE career, I fielded a .40-caliber 96FS, so testing the Brigadier Tactical brought back a memory or two. The 96FS was excellent as a duty pistol, with a smooth DA pull and crisp SA follow-up shots. Beretta 92/96s of various configurations remain the issued pistols for numerous agencies, along with being our current military-issued sidearm.

The only thing I added to my test pistol was my SureFire X400 light and green laser unit. I would use this laser/light on

WILSON COMBAT/BERETTA 92G BRIGADIER TACTICAL

CALIBER:	9mm
BARREL:	4.7 inches
OA LENGTH:	8.25 inches
WEIGHT:	36 ounces (empty)
GRIPS:	G10
SIGHTS:	Trijicon front, Battlesight rear
ACTION:	DA/SA
FINISH:	Black Bruniton
CAPACITY:	15+1
MSRP:	\$1,195

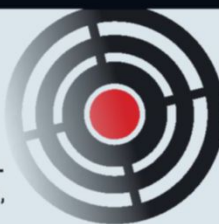


SPECIFICATIONS

PERFORMANCE

LOAD	VELOCITY	ACCURACY
ASYM Precision 147 Match FMJ	907	0.95
Barnes 115 TAC-XP	1,120	1.55
Black Hills 115 TAC-XP +P	1,340	1.50
DoubleTap 115 Nosler	1,355	1.60
Hornady 135 Critical Duty +P	1,100	1.33

Bullet weight measured in grains, velocity in fps by chronograph, and accuracy in inches for best five-shot groups at 25 yards.



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MY MEDICATION

PHOTO: JOSH WOLFE



GEMTECH

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BY FOCUSING THE BLAST STRAIGHT AHEAD

Beretta 92S 9mm

By Michael O. Humphries

The Beretta 92 series is easily one of the most iconic pistol designs in the world. With a history spanning back to the mid-1970s, the Beretta Model 92 offered a revolutionary combination of features such as its double-action/single-action (DA/SA) trigger system and a double-column magazine (as did the equally trailblazing Czech CZ 75). Mechanically, an original 92 is quite similar to any current 92 series pistol, but with some distinct differences.

The first Model 92 featured a frame-mounted safety, similar in location and operation to that of the 1911. However, the design was soon modified to incorporate a slide-mounted, non-ambidextrous decocking safety system and dubbed the 92S. One unique characteristic of the original 92 (that would set it apart from today's 92 pistols) remained on the 92S—namely the magazine release. Rather than being located behind the triggerguard area, the magazine release was instead located at the rear corner of the left grip panel (as was common on the majority of Beretta pistols that preceded it). The result is a quirky and unique Beretta 92 variant.

While recently surveying what was available on the surplus firearms market, I happened upon a Southern Ohio Gun advertisement for original 92S pistols in

excellent condition. Needless to say, I jumped at the chance to get one for my collection and put in an order immediately.

An inquiry to Beretta regarding the lineage of the pistol I purchased resulted in some fascinating information from Jarno Antonelli, a Defence & Law Enforcement Communication Specialist with Beretta's marketing department in Italy. He explained to me, "It was in 1975 when the Italian National Police (*Corpo delle Guardie di Pubblica Sicurezza*, a military institution until 1982) decided to adopt a new pistol in order to standardize its weapons. While the 92 was well accepted, some concerns were raised with the safety arrangements. Therefore, a hammer release lever was introduced to drop the hammer into full safe condition. The head of the technical commission of the police at that time was Colonel Sposetti, and the head of the Beretta designers that introduced the modification was Giuseppe Mazzetti, the 'father' of 92," he explained. "Jokes were made at the time the S-model was introduced that 'S' stood for Sposetti."

Mr. Antonelli did some further research and advised me that he had found "that some 92S pistols had been sold in June 2014 by Beretta to a sister



SPECS

Beretta Model 92S

CALIBER:	9mm
BARREL:	4.7 inches
OA LENGTH:	8.25 inches
WEIGHT:	33 ounces (empty)
GRIPS:	Plastic
SIGHTS:	Fixed
ACTION:	DA/SA
FINISH:	Blued steel
CAPACITY:	15+1

company in Switzerland. They were old Model 92S pistols that originally belonged to the Ministry of the Interior in Italy." Although he could not access the serial number fields to verify that my pistol was from that group, it seems like a reasonable assumption that this was the source of my pistol.

Needless to say, I was very happy to be able to add this 92S to my personal collection. For more information on the Model 92 series, visit beretta.com. For more information on purchasing a Beretta 92S, visit southernohiogun.com or call 800-944-4867.



The Beretta Model 92S features a uniquely placed magazine release button at the rear corner of the left grip panel (far left). The slide-mounted safety (center) is non-ambidextrous, and the front sight (left) is integral to the slide.

duty today. It provides the best of both worlds. It can be used as a light or laser only, or combined, and there is even an off switch. It has proven incredibly rugged and has served well in a couple of low-light competitions.

Working through my holster inventory, there were a couple of Blade-Tech WRS Level III tactical holsters that worked with my test pistol. Blade-Tech's TMMS quick-attach hardware mounted one of the holsters to my belt with ease. For

transition drills and entry work, I would use my Seekins Precision SBR, so I set my belt up with magazine pouches to accommodate both it and the Beretta. All testing was accomplished using Survival Armor's Paragon 6 body armor either under my shirt or in the company's FOT-OC Assault carrier.

Beretta 92 pistols I've used in the past have always been accurate, even with the initial DA trigger pull. Recoil is minimal, and the design lends itself to accurate

shooting. This pistol's "Elite"-style barrel looked to yield impressive results, and it did not disappoint. Starting at 10 yards and shooting off-hand, the Brigadier Tactical produced a 15-round group that measured less than an inch. Moving back to 15 yards and firing three-shot strings, including the DA pull, the group widened up to about 1.5 inches. Moving forward to 7 yards, adding movement and drawing from my holster, the pistol continued to cut one ever-larger hole in the target. After

100 rounds or so, I began to not even notice the DA pull, allowing me to regain my effectiveness with this design.

The take-up was smooth and predictable, making it easy to get fast, accurate, first-round hits. I then moved to the benchrest at 25 yards for chronographing and "grouping." My best effort measured just a tad over an inch using ASYM Precision's 147-grain Match FMJ ammunition. While not a self-defense load, it highlights the accuracy of the pistol. Used by professional competitors, this ammo is soft shooting and loaded to match standards. My best group using self-defense ammunition, produced with Hornady's 135-grain Critical Duty +P rounds, measured less than 1.5 inches. Nothing I tested at the range grouped outside of 2 inches.



Wilson Combat's rear Battlesight allows for fast follow-up shots. The rear ledge facilitates emergency reloads.

Practical testing started around my vehicle. I shot the Brigadier Tactical through and around the doors, windows and from behind the wheels. Doing my best to avoid any conventional positions, the 92G ran flawlessly. Once dialed in, the first trigger pull never presented an issue. The SA pull has a bit of take-up and overtravel, but it remained predictable.

Moving to the shoothouse, I started out of the holster and used only the pistol. These sights are perfect. My other pistols are set up similarly, making the transition easy. The sights were very fast in the house and easy to pick up in low light. Working from the draw, it was easy to take up the first trigger pull, slowing me down very little. It took me some time to get used to the SA follow-up shots, but that comes from many years of using

(continued on page 123)

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CROATIAN VHS 5.56mm BULLPUP

Select-fire combat rifle takes on terrorists in the mountains of Afghanistan!

CHRISTIAN SHEPHERD

SPECIFICATIONS:

HS PRODUKT VHS-D2/K2

CALIBER:	5.56mm NATO
BARREL:	16.14-19.68 inches
OA LENGTH:	27.95-31.57 inches
WEIGHT:	8.26-8.59 pounds (empty)
STOCK:	Synthetic
SIGHTS:	Adjustable front and rear
ACTION:	Piston-operated, select-fire
FINISH:	Matte black
CAPACITY:	30+1

Croatia is located in south-eastern Europe, with a coastline on the Adriatic Sea. It is slightly smaller than the U.S. state of West Virginia and borders the nations of Bosnia and Herzegovina, Hungary, Montenegro, Slovenia and Serbia. It won its independence from Yugoslavia in 1991 by fighting a bitter war over a period of four years to establish its status as a sovereign country. Since that time it has become an important part of the international community of nations. Croatia joined the North Atlantic Treaty Organization (NATO) in 2009 and the European Union in 2013.

As a newly independent nation, Croatia wanted to build a professional and well-equipped military force that could be integrated into the logistics system of NATO. To do this, Croatia decided to move away from 7.62x39mm Kalashnikov-type weapons and standardize a service rifle chambered in 5.56x45mm NATO. The result was the VHS series of rifles manufactured by Croatian arms manufacturer HS Produkt. HS Produkt began making pistols in 1991 to supply the then-fledgling Croatian military. At the request of the Ministry of Defence, HS Produkt soon started the required research



The VHS-D2 (above) is the second generation of HS Produkt's full-size bullpup rifle (left). Its next-gen features include an ambidextrous selector switch, a non-reciprocating charging handle and a five-position stock.

“Operations conducted in the Middle East and Africa have proven that the design works in real-world combat scenarios.”



DoD Photo

A Croatian soldier trains with the VHS-D during simulated combat. Note the blank-firing adapter and MILES training device.

and development for a domestically made infantry rifle. The first prototypes of the VHS rifle appeared publicly in 2005, and in 2007 field trials began with the Croatian armed forces.

Bullpup Specs

VHS stands for *Višenamjenska Hrvatska Strojnica* in Croatian, which roughly translates into English as “Croatia multi-purpose machine gun.” The VHS is a bullpup-type rifle, with the action and the magazine located behind the trigger group. An advantage of the bullpup design is that it has a shorter overall length while retaining a full-length rifle barrel. For a soldier, this means improved maneuverability and reduced weight. Two barrel lengths are available. The long-barrel version is known as the VHS-D, and the short-barrel version is known as the VHS-K. The “D” stands for the Croatian word *dugo*, meaning long in English, while the letter “K” stands for *kratke*, meaning short.

The barrel length on the VHS-D is 19.68 inches, and it is designed to mount a bayonet and can be used for launching rifle grenades. With an overall length of slightly more than 31 inches, it is meant to be a standard infantry rifle that provides full-size rifle performance while still being compact. The VHS-K has a barrel length of 16.14 inches and is designed to be as compact as possible with an overall length of just over 27 inches. The VHS-K

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can be used as a personal-defense weapon and is also ideal for use in close-quarters battle situations. The VHS-K bullpup cannot accept a bayonet or fire rifle grenades.

Between 2007 and 2011, the VHS was used in limited numbers by the Croatian military as part of its final developmental testing. This culminated with the VHS being deployed overseas on peacekeeping duties in the Golan Heights, Sierra Leone and for combat use in Afghanistan. In 2012, the VHS was fully certified by the Croatian Ministry of Defence as operational, and it was to be standardized as the country's service rifle. As good as the VHS was found to be there was always room for improvement. HS Produkt introduced second-generation VHS production rifles, known as the VHS-D2 and VHS-K2, to the market in 2013.

The changes made to the VHS-D2 and VHS-K2 were primarily incorporated to make them both truly ambidextrous and to provide improved ergonomics. The choice of two barrel lengths remains unchanged, but the overall length can now be changed by the shooter by means of a five-position-adjustable stock. This allows adjustment for shooters with different arm lengths and for when body armor is being worn. An ambidextrous three-position selector switch is located on both sides of the rifle just above the pistol grip. The position of the selector makes it easy for right- and left-handed shooters to use the weapon. Pictogram selector markings are used, with indications for safe, semi-automatic and fully automatic fire.

Croatia MoD Photo



The VHS-D's bullpup design decreases its overall length while still offering a 19.68-inch barrel for improved accuracy.

“By all accounts, the VHS rifle is well liked by Croatian soldiers and civilian shooters in European nations that allow ownership of select-fire rifles.”

A long carrying handle is integrated into the design, and a non-reciprocating, folding, ambidextrous charging handle is located on top of the receiver, inside of the carrying handle. The top of the carrying handle has a long NATO STANAG 4694 accessory rail that can accommodate optics of various lengths as well as iron sights. The Croatian military has used German Hensoldt, Swedish Aimpoint as well as domestically produced optics on

the VHS. The long accessory rail on top leaves room for additional magnifiers, night vision or thermal imagers to supplement the primary day optic. A forearm available for the second-generation VHS rifles also has STANAG 4694 accessory rails on the bottom, right and left sides. The bottom rail can be used for mounting a vertical grip or bipod while the right and left side rails can be used to mount flashlights and laser-aiming devices.

Enhanced Design

HS Produkt also makes a 40x46mm low-velocity grenade launcher specifically for the VHS rifle. This weapon is known as the VHS-BG, the letters BG standing for *bacac granata* or grenade launcher. Users must simply remove the rifle's forearm and replace it with the grenade launcher assembly. This can be done in a matter of seconds without the use of tools.

The single-shot launcher is capable of firing a full range of lethal and less-lethal rounds and, in the hands of a trained grenadier, can be accurately fired at a rate of five to seven rounds per minute. HS Produkt also makes an integrated stock assembly with a pistol grip and sights that allows the VHS-BG grenade launcher to be used as a standalone weapon.

HS Produkt designed a 30-round

(continued on page 114)



Croatia MoD Photo

Croatian Military Police train with VHS rifles before a deployment. The soldier on the left carries the VHS-K while the one on the right has a grenade-launcher-equipped VHS-D.



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JORDANIAN SPECIAL FORCES

Pro-Western kingdom keeps the peace with its elite JSOC warriors!

BY LEROY THOMPSON

“Jordanian special operations personnel are highly regarded in the world’s special operations community.”

Win the case of the Hashemite Kingdom of Jordan, funding for special operations units is not a problem. That’s because the king is the former commander of the unit and a strong believer in the value of highly trained special operations troopers. In fact, Jordan sponsors one of the world’s foremost special operations gatherings, the Special Operations Forces Exhibition & Conference (SOFEX), which is held every other year at the King Abdullah I Air Base in Marka, Jordan. The most recent SOFEX took place in May of 2014. Reportedly, when Abdullah II became king, one of his great disappointments was that he would no longer be allowed to carry out parachute jumps!

Jordan’s special operations forces trace their beginning to April 15, 1963, when King Hussein ordered their creation with the missions of reconnaissance, counterterrorism, combat search and rescue (CSAR), raids and protection of

important facilities. In the tradition of special operations units that operate in a desert environment, Jordanian operators are also trained to operate behind enemy lines and attack supply lines.

Jordan’s Elite

Initially formed as a parachute company, as the unit received more advanced training and its mission widened it became a brigade by the 1980s. Within the brigade were airborne, special forces and counterterrorist units. One of the most pro-Western Arab countries, Jordan has faced extensive external threats and some internal ones, though the population is generally loyal to King Abdullah. As a result, the current Jordanian Joint Special Operations Command (JSOC) is

organized into three brigades: the Special Forces Brigade, which handles an array of special operations missions and includes the Counterterrorist Battalion (SOU-71), which handles hostage rescue and other counterterror missions, and the Combat Search and Rescue Battalion; the Ranger Brigade, which carries out missions similar to U.S. Army Rangers, though with more focus on internal counterinsurgency



Jordan’s spec-ops arsenal includes several desert-ready vehicles, like the battle-proven American Humvee.

operations; and the Special Operations Aviation Brigade, which gives the Jordanian special operators specifically trained pilots for insertions.

There is also the 61st Special Reconnaissance Regiment, which is part of the Royal Guard Brigade. In fact, the entire Royal Guard Brigade comes under operational control of the JSOC. Descended from the famous Arab Legion, the Royal Guard Brigade has a long and storied history. Some members of the Royal Guard and special forces are descendants of the raiders who fought the Turks alongside Lawrence of Arabia. Along with various support units, JSOC also includes a Civil and Military Affairs Company with a psychological warfare capability.

Among specific missions carried out by the Jordanian JSOC are raids on key enemy installations, strategic recon, rescue of POWs or evacuation of civilians, organizing and training guerrillas, search and rescue, assistance to friendly Arab nations, counterterrorist operations, interdiction of infiltration and smuggling (especially along the Iraq border), internal security, dignitary protection, training of other Jordanian armed forces units, training for Jordanian law enforcement, training for officers and NCOs from other friendly countries, participation in joint training with other countries and participation in United Nations missions. Note



Jordanian Special Forces operators give a demonstration on an aircraft takedown.



JSOC Photo

A Jordanian operator rides the running board of a vehicle during VIP escort duties.

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Inside Jordan's Spec-Ops Training Center

The King Abdullah II Special Operations Training Center, or KASOTC, is one of the most sophisticated training facilities in the world. Situated in a former rock quarry, which provides a backstop for firing in much of the facility, the 25-square-kilometer facility offers an array of training areas. These include a 1,300-meter, unknown-distance sniper

training area and a 300-meter moving target range that can be configured for different scenarios, including vehicle ambushes and counter-ambushes. A four-story, live-fire, CQB facility allows a range of hostage rescue or building takedowns to be practiced. There is also a mock village with 67 buildings from an "embassy" to an Afghan village. At the facility's "airport" there are aircraft that allow for training on tubular assaults.

Linking the various facilities are sophisticated video and sound systems. On ranges, various simulators offer ever-changing scenarios covered by CCTV that allow operations to be later critiqued. Battlefield special effects can act as "stressors" in various facilities.

Instructors and students are drawn from all over the world, allowing a great chance to learn from other special operators. In addition to the training areas, there is lodging and dining on site, as well as weapons storage, a gym and a pro shop. Some friends of mine who have been call it one of the best special operations training facilities in the world—many say the best! For more information, visit kasotc.com.



U.S. and Jordanian special operations personnel practice taking down an aircraft at the King Abdullah II Special Operations Training Center.

"In the tradition of special operations units that operate in a desert environment, **JORDANIAN OPERATORS are also trained to operate behind enemy lines and attack supply lines."**

that the various training and assistance missions carried out by the JSOC are very important, as the Jordanian operators are among the best-trained in the Middle East and as Arabs can work closely with many other Middle Eastern countries that might not welcome Western special forces operators. Among the countries that have received training from Jordanian special operators are Algeria, Bahrain, Iraq, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, the UAE and Yemen.

Making The Grade

Those candidates for the Jordanian JSOC must first pass a series of physical and mental tests. They then move onto a one-month basic course designed to weed out those without the physical or mental stamina to succeed in the unit. Those who complete this basic selection then undergo a 10-week Ranger course and a four-week basic parachute course.

Individual operators then take various

other courses to prepare them for their missions. These can include jump master, free-fall parachuting, pathfinder, land navigation, urban warfare and internal security, tactical air control, combat medicine, amphibious operations, special forces methods and operations, small-unit tactics, demolitions, sniping, combat shooting and various others. JSOC also places great stress on individual close-combat skills. As a result, trainees take a 24-week course in Tae-Kwon Do or Brazilian Jiu-Jitsu. Sijal is another martial art operators learn. It is basically the Jordanian version of Krav Maga and is taught in an eight-week course. Use of the blade is strongly stressed as well. Traditionally, the Jordanian Special Forces have had good relations with the ROK Special Forces so it is likely that Tae-Kwon Do instructors have received a high level of training. Once Jordanian operators are full-fledged members of the unit, they wear maroon berets.

Guns & Gear

One advantage of SOFEX being held in Jordan is that members of JSOC get a chance to see and try the latest weaponry. For their rifles the Jordanians use the HK416 and G36 as well as the U.S. M4. For submachine guns, they use the HK MP5 (including MP5SDs), UMP and MP7. The desert environment in Jordan lends itself to long-range shooting, which is reflected by the number of sniping rifles available to operators. These include the Sako TRG-22 in 7.62mm, Sako TRG-42 in .338 Lapua, the Accuracy International L115A1 in .338 Lapua and a 7.62mm DPMS Panther rifle. At least some Russian VSS suppressed sniper rifles are available as well. For anti-materiel rifles they use the Barrett M82A1 and M95, the Accuracy International AS50 and the McMillan TAC-50, all in .50 BMG. To the best of my knowledge the only shotgun used is the Benelli M4.

Handguns available include the HK

USP, Sig P226 and Glock 17 and G19. Heavier support weapons include the FN Minimi, the FN M240 and the M60E3 medium machine guns; the Browning M2HB heavy machine gun; the M203, Mk 19, HK GMG and Milkor MGL 40mm grenade launchers; the M41 ITAS, FGM-148 Javelin and AT-14 Kornet anti-tank missile launchers; SA-24 surface-to-air missiles; and Brandt 120mm and M224 60mm mortars. Among the light vehicles available to JSOC are Humvees, Desert Iris light utility vehicles, Al-Thalab long-range patrol vehicles, Dodge RAM 2500s and LTATVs. The counterterrorist unit has Land Rovers equipped with ladders for rapid access to windows or aircraft.

Aircraft used by the Jordanian Special Operations Aviation Brigade include the CASA CN-235 configured as a fixed-wing gunship to perform tactical support missions, as does the USAF AC-130 gunship; the UH-60L Black Hawk; the MD 530F light helicopter, with missions similar to

the United States' "Little Birds;" and the Eurocopter EC635.

Top Training

Naval Special Warfare capability rests with the 77th Marine Reconnaissance Battalion of the Jordanian Navy and members of JSOC who are scuba qualified (including King Abdullah, who is a qualified combat swimmer). The 77th Marine Reconnaissance Battalion is organized into two surveillance companies. The Jordanian Navy does maintain eight rigid-hulled inflatable boats (RHIBs) for special operations usage as well as some other small boats. The 77th Recon trains frequently with the U.S. Marines and in one exercise during Eager Lion 2012, U.S. Marine Recons, Jordanian 77th Recons and Saudi Special Naval Forces practiced landings on Jordanian beaches and seizures of positions in mountainous terrain. It was not lost on observers that the terrain resembled that of Iranian-

controlled islands in the Gulf of Hormuz.

At least partly due to the influence of King Abdullah, Jordanian operators have had a chance to train with virtually every top-flight special operations unit in the world, either in Jordan or abroad. The unit has especially good relations with the U.S. Navy SEALs, U.S. Army Special Forces and U.S. Marine Corps Recons and MARSOC, as well as the British SBS and SAS. Reportedly, Jordan also maintains contacts with Israeli special operations units.

Jordanian special operations personnel are highly regarded in the world's special operations community. They may well get a chance to prove this in combat, for as I write this, with ISIS threatening Iraq and the surrounding countries, it has been said that many operators of the Jordanian Special Operations Command have been deployed along the border. They will likely prove a far more formidable enemy than ISIS has faced so far. **SW**

JSOC Photo



FAR LEFT: Jordanian Special Forces operators roar into position and carry out a building assault using ladders and a specially modified tactical vehicle.

LEFT: Jordanian and U.S. special operators practice fast-roping from Black Hawks during training at the King Abdullah II Special Operations Training Center.

BELOW: Special operations personnel from the United States and Jordan work together during training to escort vehicles and deploy quickly into a mock urban area.



COMBAT CLASSICS

The M1 Garand gave U.S. troops fast, reliable, .30-06 firepower.



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M1 WEAPONS OF WWII

How the Garand, Thompson and M1 Carbine helped the U.S. win the war!

BY WILL DABBS

These days, gunfighting is both high art and big business. An entire lucrative industry owes its existence to the fact that tactical skill at arms is now a fairly regimented and scientific undertaking. However, contemporary military operations in urban terrain (MOUT) and close-quarters battle (CQB) operations are dwarfed by the global conflict that was World War II.

During the years spanning 1939 through 1945, the world saw its bloodiest and most expansive conflict. Citizen soldiers by the millions took up arms

that represented the technological state of the art and proceeded to fight for the continued existence of their nations.

Logistical support in WWII was the stuff of nightmares. Down to the platoon level, U.S. infantry units would have potentially required ammunition in three different calibers and five different configurations. Three of the most common infantry small arms used by American forces in WWII carried the "M1" designation. Inspired by interviews with veterans who were there, this article endeavors to assess each of these weapons by contemporary tactical standards.

M1 Garand

Canadian John Cantius Garand designed his eponymous M1 Garand in the early 1930s. Firing a full-power 7.62x63mm (.30-06) cartridge, the Garand was accepted for general issue by the U.S. Army in 1936. Its robust gas-operated action, mated with an en bloc eight-round, semi-automatic feed system, represented a quantum leap forward in infantry firepower. General George Patton famously opined that the Garand was "the greatest battle implement ever devised." For all its indisputable attributes and near-religious acolytes, however, the Garand had a few shortcomings.

Like all battle rifles of the day, the Garand was long and heavy. While the semi-automatic, clip-fed action was lightyears ahead of the bolt-action rifles used by other combatants of the period, the rifle had to be dismounted from the shoulder to reload and the sling swivels are on the wrong side for tactical use.

Every veteran I have ever met who used the Garand in action loved it. The weight and bulk were more than offset by the rifle's semi-automatic firepower and reliability in action. If the bolt fouled due to mud or debris, the operator could



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COMBAT CLASSICS

Alex Landeen Photo



Unlike previous Thompson submachine gun variants, the M1A1 version for U.S. troops would only accept 20- and 30-round "stick" magazines, not larger drum magazines.

take a boot to the charging handle and have the weapon back in action. A friend dropped a German SS trooper with a single round at extreme range with his esteemed M1 Garand while liberating Orly Airport outside Paris. He loved the Garand, and given his pedigree, I trust this man's opinion of the weapon.

M1A1 Thompson

General John Taliaferro Thompson developed the original submachine gun that eventually evolved into the M1A1 Thompson in 1919. The Thompson was intended to revolutionize the sort of



trench warfare that characterized World War I by allowing a single soldier to sweep through enclosed spaces with a handheld automatic weapon. The gun was adopted by the U.S. military in 1928 and saw its combat debut in the Nicaraguan crisis wielded by U.S. Marines.

The United States was the third nation in the world to adopt a submachine

gun, and the Thompson represented the apogee of old-school manufacturing techniques. While the wartime M1A1 version profiled here incorporated a simplified bolt with a fixed firing pin, a smooth barrel and Spartan furniture when compared to the refined civilian 1921 versions contracted out to Colt, the receiver was still cut from a solid piece of forged steel. As a result, it was quite heavy. Production of the Thompson ended in 1943.

The Thompson was really obsolete by the time WWII began, but it was available in some quantity, and that was its saving grace. The stopping power of the .45 ACP was indisputable, and Americans raised on the gangster mythos of the roaring 1920s loved the gun. Despite the prevalence of the Thompson in movies, I have a friend who fought as an infantryman through North Africa, Sicily and Italy and told me he never saw a Thompson in an infantry unit. The Thompson was common among tankers and airborne formations and was a popular prize whenever it could be obtained in the infantry. Audie Murphy, the most highly decorated American soldier in WWII, carried a Thompson.



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Noncommissioned officers, special troops like truck drivers and artillerymen, and company-grade officers carried the .30-caliber M1 Carbine in combat. The later M1A1 variant featured a folding wire stock designed for paratroopers.

M1 Carbine

David Marshall “Carbine” Williams designed the M1 Carbine while in prison for killing a deputy sheriff during a raid on his North Carolina moonshine still. The M1 Carbine was designed to equip noncommissioned officers, special troops such as truck drivers and artillerymen, and company-grade officers in combat. The M1 Carbine was the most prolifically produced small arm in the U.S. arsenal, with around 6 million copies rolling off the lines from at least nine different manufacturers.

The M1 Carbine fired a straight-walled, .30-caliber cartridge that seemed more appropriate for a pistol than a combat rifle. The rifle fed from a 15-round box magazine, though 30-round magazines were developed at the end of the war and saw widespread service in Korea. The carbine weighed about 6 pounds and was produced in both folding-stocked paratrooper versions as well as a selective-fire variant designated the M2.

The M1 Carbine was light, handy and popular. Unlike the other two M1s profiled here, the sling mounts to the side so that it can be used tactically, and the controls are handy and intuitive.

Range Shootout

On the range, each of these three M1s has its own distinctive personality. The Garand hits hard as far out as I can reasonably shoot. The safety is mounted in the triggerguard and is fairly loud but unambiguous. The sights are designed for a rifleman and are readily adjustable for both windage and elevation in the rear via large thumbwheels. Recoil is manage-

able due to the mass of the weapon and, though the reloading drill is onerous, it is an intuitive process with practice.

The M1 Garand hangs naturally at the hip and, while hip shooting is a lost art these days, it was an integral part of tactical operations during WWII.

To call the Thompson submachine gun a boat anchor does disservice to boat anchors. Fully loaded, the gun is exceptionally heavy given its modest size. Additionally, the center of gravity is fairly far to the rear, and the gun requires attention and appropriate technique to control muzzle rise. Its controls are intuitive for right-handed operators, though the fire selector is too far forward for me to readily manipulate despite my long thumbs.

Interestingly, the Thompson sports an open-bolt action that holds open after the last round has been fired. The bolt locks back on an empty magazine so that the operator needs only to swap magazines and squeeze the trigger to be back in action. The M1A1 version will not accept a drum magazine and feeds from 20- and 30-round boxes that are fairly heavy when loaded in their own right.

The M1 Carbine is functionally recoilless and a joy to run. Mine is a wartime Rockola gun that has been utterly reliable despite its advanced age. I find the extensive fencing around the sights a bit distracting when shooting in a hurry, but the low sight axis makes for accurate fire at reasonable ranges. The M1 Carbine's light weight and modest dimensions are indeed fairly intoxicating, so to speak.

Controls came in two flavors on wartime M1 Carbines, but its switches are readily accessible and intuitive. The bolt can be manually locked to the rear, but it does not lock open

automatically on early empty magazines. As a result, the M1 Carbine's bolt must be manually charged with each reload.

U.S. Warriors

Things were not so standardized back in WWII, and feeding all these disparate weapon systems in combat must have been a wretched chore. I can only imagine the plight of the M1-Carbine-armed paratrooper nearly dry on ammo who desperately throws open a drop case



The M1 Carbine provided a fast semi-auto action and fired the .30 Carbine round, a smaller cartridge made for close-quarters firefights.

only to find bandoleers of .30-06 ball ammunition. However, the upside is that each of these three M1s was very good at its assigned mission.

The Garand is the archetypal battle rifle that reaches out and touches targets at extreme ranges. The Thompson, with its cloud of heavy bullets, would sweep a room or trench better than most any weapon before or since. The M1 Carbine is an easy weapon to carry and maneuver exceptionally well.

Eventually, weapons systems were consolidated for ease of logistics. Innovative materials science and manufacturing techniques relegated these three M1s to the history books. However, the American infantry formation in WWII was the most well-armed combat unit on the 1940s battlefield. The unique combination of U.S. manufacturing might and technical innovation saw to that. **SW**

Specifications:	M1 GARAND	M1A1 THOMPSON	M1 CARBINE
CALIBER:	.30-06	.45 ACP	.30 Carbine
BARREL:	24 inches	10.5 inches	18 inches
OA LENGTH:	43.6 inches	32 inches	35.6 inches
WEIGHT:	9.5 pounds	10.45 pounds	6.19 pounds
STOCK:	Wood	Wood	Wood
SIGHTS:	Adjustable	Adjustable	Adjustable
ACTION:	Semi-auto	Select-fire	Semi-auto
FINISH:	Parkerized	Parkerized	Parkerized
CAPACITY:	8+1	20+1, 30+1	15+1, 30+1

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HECKLER & KOCH MR762A1 LRP

By Doug Larson



BARRIER-BUSTING COUNTERSNIPER
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BIG-BORE POWER!

Having become familiar with the AR-15 chambered in 5.56mm NATO, many shooters now want the same gun in 7.62mm NATO. And while the smaller caliber has served since the mid-1960s, longer distances encountered in recent conflicts have led to a resurgence in demand by the military for the more powerful .30-caliber round.

Heckler & Koch listened and designed the HK417, which is the big brother to the successful HK416, its proprietary piston-driven AR-pattern carbine. The HK416 was adopted by some special operations units as their weapon of choice and has served well over the years, so using it as the template for the larger HK417 made a lot of sense. But both the HK416 and HK417 are select-fire guns capable of fully automatic fire and thus cannot be legally owned by citizens who are not in the

military. So, to satisfy commercial and law enforcement demand, Heckler & Koch took the HK417 and used it as the basis of the MR762A1, which is civilian-legal because it is only capable of semi-automatic fire.

Gun Details

But with the Long Rifle Package (LRP) version, the company took the MR762A1 a step further and created a rifle with even more accuracy in mind. And it's a handsome rifle. The metal parts are basic black, but the furniture is tan or Flat Dark Earth, depending on what you want to call it. Starting up front, the barrel is tipped with a flash suppressor that resembles the A2 version associated with the M16. But it's a little different. Most notably, it does not have a solid bottom and instead has a slot at the six o'clock position.

The 16.5-inch, cold-hammer-forged barrel is made by HK in Germany, shipped to the U.S. and then finished before being mated to the receiver. It has four lands and grooves that make a full right-hand twist in 12 inches.

Surrounding the barrel is a quad-rail handguard that allows the barrel to float freely, an accuracy-

“The HK MR762A1 LRP comes with a boatload of accessories so it’s ready for duty.”



Heckler & Koch has upgraded its piston-driven MR762A1 for designated marksman duty with the new Long Rifle Package (LRP). The semi-auto rifle comes in a hard-sided Pelican case with a variety of accessories, including a Leupold 3-9x40mm VX-R Patrol scope, a sling and an Otis cleaning kit.

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HK MR762A1 LRP



The MR762A1 LRP is built for reliability and precision at longer distances, and it comes with a Leupold scope already mounted in place. Just confirm your zero and go to work. Also note the target in this photo, which demonstrates the test rifle's excellent precision right out of the box.

enhancing feature. The handguard is supplied with rail covers that do a great job of dissipating heat and, in fact, will not burn. Some sections of the covers have a groove in which wires for accessories like lights or lasers can be routed to keep them from getting snagged.

The handguard is easily removed by loosening two screws on one side. HK even supplies a handy hex-key wrench set to use. Once the handguard is off, the proprietary short-stroke piston system is easily accessed for maintenance. To remove it, just pull the pushrod to the rear, which disconnects it from the piston. Pull the rod forward to separate it from the receiver and then slide the piston out of the gas block. Cleaning doesn't require much more than simply wiping off any accumulation of carbon.

The upper receiver has a Picatinny top rail running its length that interfaces with the upper rail on the handguard, providing a practically uninterrupted platform about 17 inches long for the attachment of optics, sights, night vision or other equip-

ment. The upper resembles an overgrown AR upper with a brass deflector and bolt forward assist as well as an ejection port cover. However, the ejection port cover is polymer. Good or bad? It works and didn't break, so it doesn't seem to be something to worry about. Besides, there are plenty of polymer pistol frames out there that are difficult to break. On the other side of the upper is a fence that protects the bolt release from being accidentally activated. If you've ever had the bolt locked to the rear and then accidentally bumped the release, allowing the bolt to fly forward, you'll appreciate this feature.

The lower receiver is, again, similar to that of an AR. Obviously, HK made an effort to create a rifle that was ergonomically similar to the AR and that was operated the same way when it designed the HK416 and HK417. The magazine well is widely beveled to encourage fast magazine changes using the same proprietary magazines that are used in

SPECIFICATIONS

HECKLER & KOCH MR762A1 LRP

CALIBER:	7.62mm NATO
BARREL:	16.5 inches
OA LENGTH:	36.5-40.5 inches
WEIGHT:	13.3 pounds (empty)
STOCK:	Collapsible
SIGHTS:	Leupold 3-9x40mm VX-R Patrol
ACTION:	Piston-operated semi-auto
FINISH:	Matte black
CAPACITY:	20+1
PRICE:	\$6,899

PERFORMANCE

LOAD	VELOCITY	ACCURACY
Federal 150 Fusion	2,806	1.98
Hornady Match 168 A-MAX	2,681	1.76
Winchester Match 168 BTHP	2,641	2.37

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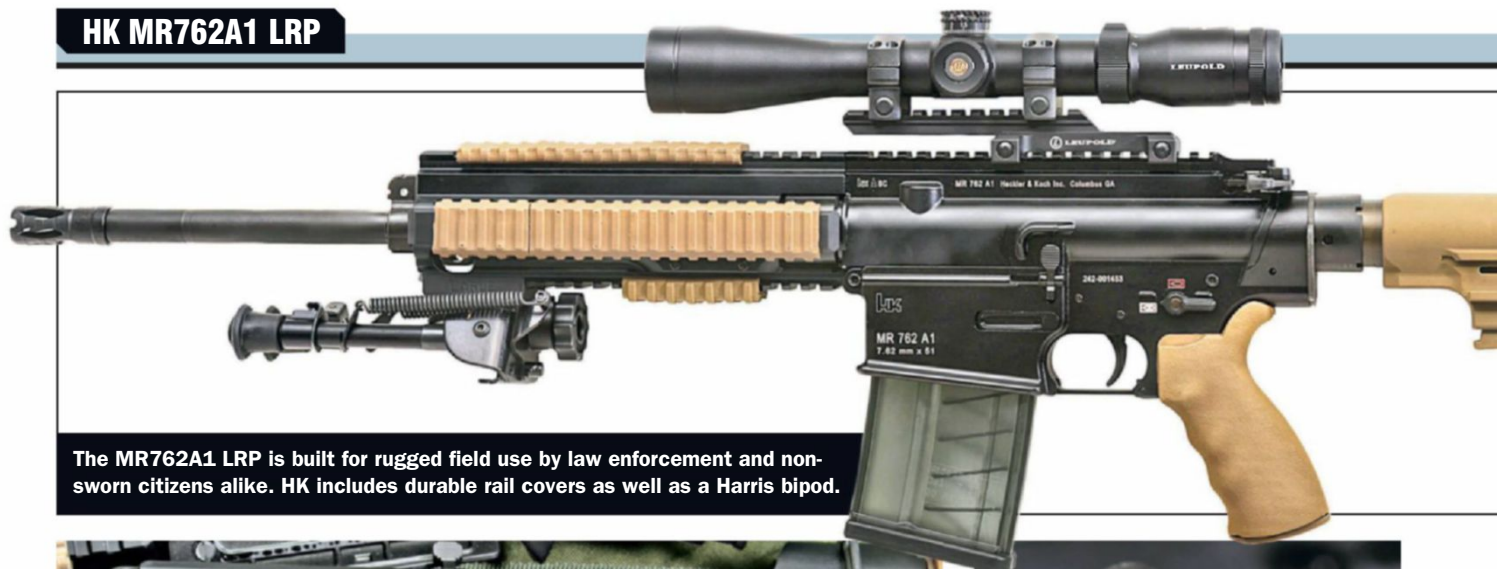
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HK MR762A1 LRP

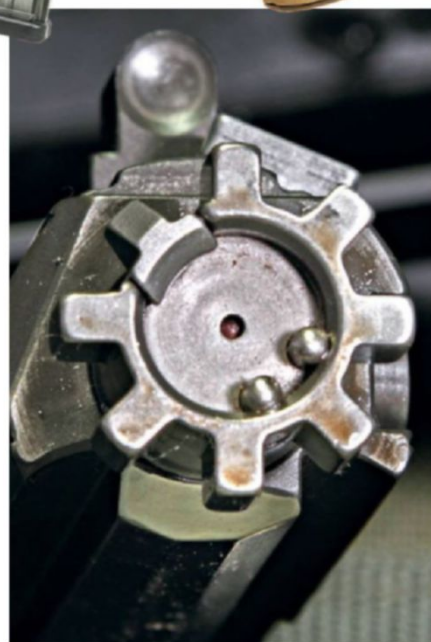


The MR762A1 LRP is built for rugged field use by law enforcement and non-sworn citizens alike. HK includes durable rail covers as well as a Harris bipod.



ABOVE: The bolt carrier group is similar to any piston-driven AR carrier except that it has a lever that prevents the firing pin from moving forward, causing a slam fire. When the trigger is pulled, the hammer disengages the lever before striking the firing pin.

RIGHT: To ensure positive ejection and optimum reliability in even the harshest conditions, the MR762A1 LRP's bolt has two ejectors integrated into the design instead of the single ejector normally found on AR-style guns.



the HK417. When pressed, the magazine release allows them to drop freely. The safety is ambidextrous and bears the same distinctive "safe" and "fire" symbols one is used to seeing on Heckler & Koch products. A major difference from the standard AR is the fact that the safety can be engaged when the gun is not cocked.

The trigger is a two-stage design that has a very light first stage followed by some creep and a very nice let-off at about 5 pounds. It's actually a pretty nice trigger for a factory-made AR-style gun. The triggerguard is hinged just like the one on a standard AR-15 so that users wearing gloves will have an easier time running the gun. An Ergo pistol grip that increases the trigger reach is also affixed. Those with smaller hands may not prefer it, but that can easily be remedied by installing a different aftermarket AR-pattern grip if the owner so desires.

At the rear of the lower receiver is an

endplate with a sling loop on each side to accommodate the two-point Blue Force Gear Vickers Combat Applications sling that is supplied. The castle nut, substantially larger than the one on a typical AR, secures the receiver extension. The adjustable buttstock that rides on the extension, or buffer tube as some call it, is borrowed from HK's G28 rifle, the semi-automatic 7.62mm rifle chosen by the German Army.

This buttstock has a number of nice features, including a cheekpiece that can be raised or lowered to suit the shooter. The cheekpiece also slides fore and aft with spring resistance so that it does not interfere with the charging handle when it is pulled to the rear. Some manufacturers are not so savvy and build guns with cheekpieces that prevent the charging handle from being retracted when the piece is raised. Go figure.

A rubber buttpad with a sling loop

on each side is attached to the rear of the buttstock. The pad is fairly hard so it won't do much to tame recoil, but the recoil isn't bad since semi-automatics have a tendency to attenuate felt recoil anyway. The rubber buttpad is actually there to keep the butt from slipping out of position against the shoulder or body armor. By turning a round nut, the buttpad can be moved about 1.25 inches farther to the rear, which gives even more adjustment to the length of pull. So, with the combination of the four-position buttstock and the adjustable buttpad, the HK MR762A1 LRP's overall length can be changed from 36.5 to 40.5 inches.

To separate the upper and lower receivers and get to the bolt carrier group, a special tool is supplied to disengage the pivot and takedown pins. Each pin has a spring-loaded plunger inside it that is pushed with the thin, cylindrical takedown tool. Just keep pushing and the spring-



The 16.5-inch, cold-hammer-forged barrel is manufactured in Germany and then shipped to the United States, where it is finished and mated to the upper receiver. The flash suppressor is similar to the A2-style flash suppressor found on many AR-style rifles.



The MR762A1 LRP's controls are in standard AR positions, which means operators should require little transition training. Also note the Ergo pistol grip for enhanced handling and Heckler & Koch's translucent magazine, which helps you keep track of your remaining ammunition.

"Starting up front, the barrel is tipped with a flash suppressor that resembles the A2 version associated with the M16."

Off the bench, the MR762A1 LRP proved to be reliable and comfortable to shoot. Its weight, combined with its good ergonomics, helped to reduce felt recoil at the range.



loaded detents disengage followed by the pins being pushed out of engagement.

Once that procedure is completed, the receivers separate and the charging handle can be pulled rearwards until the bolt carrier group is removed.

The bolt carrier group, while similar to an AR's, has some distinct differences. As with most piston guns, the gas key has been replaced with an abutment that is integral to the carrier against which a rod pushes to send the bolt carrier group into motion. Just to the rear of it is a lever. At rest, the lever pivots downward at the rear to engage the firing pin and prevent it from moving forward and causing a slam fire. When the trigger is pulled, the hammer first engages the lever and pushes it up and out of the way, allowing the hammer to strike the firing pin, driving it forward into the primer. HK also uses a firing pin spring to hold the firing pin to the rear until the hammer strikes.

Another major difference is the firing-pin-retaining pin, which is captive and not of the split-pin configuration found on typical ARs. It is pushed from the right side to the left, but stops before falling out, making it nearly impossible to lose. Once the retention pin is moved, the firing pin safety lever must be pushed up in order to remove the firing pin. The last major difference is dual ejectors instead of just one.

The HK MR762A1 LRP comes with a boatload of accessories so it's ready for duty. There's no need to put out money for a scope and mounts. HK includes a Leupold 3-9x40mm VX-R Patrol scope with a Leupold mount, so all you have to do is confirm your zero and go to work. The rifle also comes with a Harris bipod already attached using a LaRue Tactical mount. At the front of the rail, HK has attached a Blue Force Gear sling mount that can be moved to whatever position

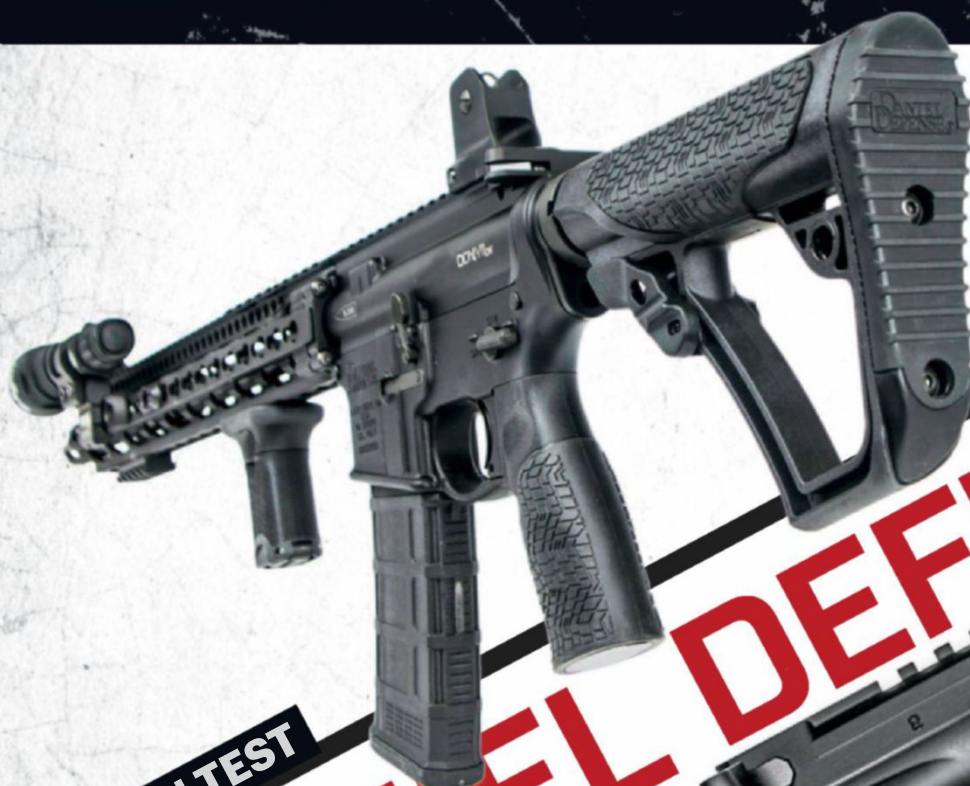
the shooter wants. Also supplied is an Otis cleaning kit as well as the hex key set already mentioned, and it's all stowed in a sturdy Pelican case.

I took the rifle out to range with a selection of ammunition and set about running it through its paces. Shooting this gun was enjoyable. The trigger made precise shot placement much easier than with a normal military, AR-style two-stage trigger. While the gun is a bit heavy and the optics aren't optimal for close, off-hand work, with some practice the gun could be pressed into service under those circumstances. For more information visit hk-usa.com or call 706-568-1906.

Editor's Note: At the time this issue went to press, we were informed that Heckler & Koch is planning on releasing a Mark II variant of the MR762A1 LRP. It will feature a longer KeyMod handguard and a new pistol grip. It will also be offered with and without the Leupold scope. **SW**



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ready features.





THERE'S NO ARGUMENT.

The most popular rifle in the U.S. today is the AR-15. Born almost six decades ago and field-tested in the Vietnam War, the AR-15 family has been used in every subsequent military action. But generations of ex-military folks being familiar with the system did not provide the impetus for today's AR-15 popularity. Many viewed it as a specialty firearm with little day-to-day utility.

The failure of handguns and shotguns against two armored, determined bank robbers in Los Angeles drove the

AR platform into LEO patrol vehicles everywhere. It also reintroduced the AR into the mainstream gun community's consciousness, where it remains, growing in popularity with leaps and bounds. The Global War on Terror has produced new generations of folks returning home with AR-15 familiarity. No longer is the AR a specialty firearm. LEOs and civilians demand them—and rightfully so!

Broadly speaking, there are two types of companies producing today's ARs: smaller boutique shops and larger, more mainstream companies. One difference is the willingness of larger companies to design and build most, if not all, of their parts. At one point over a decade ago, Daniel Defense was definitely in the "smaller" category—so small that it offered no completed carbines! Daniel Defense was designing, creating and selling sling loops and rails in small batches.

My, how times have changed. Today,

Daniel Defense offers parts, complete firearms and most things in between, with virtually everything built in-house. In fact, Daniel Defense has the capacity to make over 8,000 cold-hammer-forged barrels a month in multiple calibers and configurations. In only a few years, Daniel Defense has garnered an excellent reputation.

Attention To Detail

Part of the company's popularity stems from its attention to detail and not taking shortcuts. All Daniel Defense bolts are made of desirable Carpenter 158 steel, and they're shot peened, high-pressure (HP) tested and magnetic-particle (MP) inspected. These are not inexpensive tests to perform, demonstrating Daniel Defense's commitment to producing the best. Every Daniel Defense carbine comes with M4 feed ramps, and the barrels have chrome plating or are salt bath nitrided for corrosion resistance.

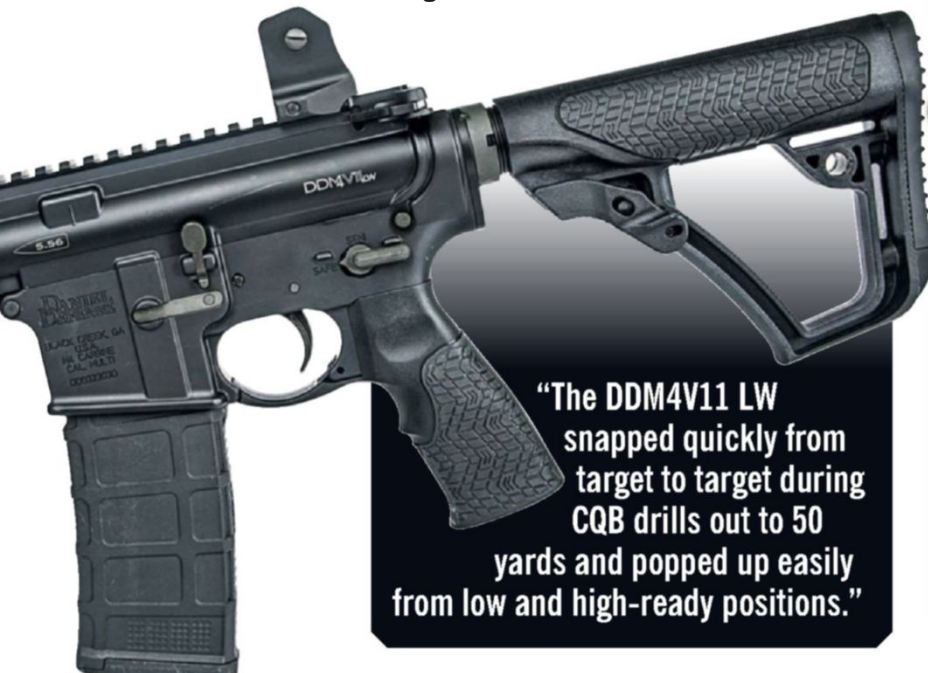
Daniel Defense's backbone of this product line is the DDM4 carbine, which is offered in numerous versions. Calibers, barrel lengths, handguards, furniture—you name it and Daniel Defense has or can build an AR the way you want it.

One of today's hot AR trends is KeyMod system handguards. Like most folks, I find that quad-rail handguards

DANIEL DEFENSE M4V11 LW 5.56MM

RIGHT: The new Daniel Defense buttstock features a thick rubber buttpad that helps absorb recoil. It also has treads to keep the stock in position on an operator's shoulder—another well-thought-out enhancement.

BELOW: Daniel Defense's new polymer pistol grip and stock furniture is fitted with Soft Touch overmolding for better traction and comfort.



"The DDM4V11 LW snapped quickly from target to target during CQB drills out to 50 yards and popped up easily from low and high-ready positions."

with accessories may get the job done, but two problems persist: Rails make the handguard bulky and heavy. This explains the popularity of smooth-sided handguards that allow users to add small accessory rails where needed.

Developed by Vltor and Noveske Rifleworks, the KeyMod system became open source to benefit everyone's efforts and establish a standardized universal attachment system. The svelte KeyMod system is a rail-less, direct accessories attachment method promising virtual "return to zero" for the accessories. A final benefit is

that the KeyMod openings cut into the handguards also help reduce weight for faster handling.

I really like the KeyMod system and its benefits. The system's popularity continues to grow, and many companies are now offering handguards and accessories in this style. Daniel Defense recently released the DDM4V11 series of rifles with its newly designed SLIM (Slim Lightweight Modular) Rail 15.0, the company's first rail system featuring the KeyMod

attachment system. As a fan of Daniel Defense's products, I recently jumped at the opportunity to test a DDM4V11 Lightweight (LW) with a 16-inch barrel.

Gun Details

Because the 5.56mm NATO is not an abusive cartridge, a heavy weapon is really not necessary. Unlike our warriors overseas, most LEOs will not carry a heavy pack and carbine for miles on end to get to a location. A lightweight rifle, on the other hand, is more pleasant to handle and more likely to be practiced with extensively.

A good-looking carbine, the DDM4V11 LW is the progeny of the DDM4V9, sharing all of Daniel Defense's pertinent AR traits. The mil-spec upper and lower receivers are CNC-machined from 7075-T6 aluminum and Type III hardcoat anodized. Some of the carbine's special touches include an enhanced, flared magazine well, a QD swivel attachment point at the rear of the lower receiver, a top rail with indexing marks and M4 feed ramps.

The chrome-lined bolt carrier group is blessed with a properly staked gas key. Part of a mid-length gas system, the CNC-machined, 4140 hardened steel, low-profile gas block is given a phosphate coating and pinned into position. The cold-hammer-forged, chrome-moly-vanadium steel, 16-inch, Lightweight-



SPECIFICATIONS

DANIEL DEFENSE M4V11 LW

CALIBER:	5.56mm NATO
BARREL:	16 inches
OA LENGTH:	32.25-35.88 inches
WEIGHT:	6.15 pounds (empty)
STOCK:	Six-position collapsible
SIGHTS:	None
ACTION:	Direct impingement semi-auto
FINISH:	Matte black
CAPACITY:	30+1
MSRP:	\$1,599

PERFORMANCE

LOAD	VELOCITY	ACCURACY
HPR 55 V-MAX HyperClean	2,853	0.81
Outback 55 Sierra BlitzKing	2,911	0.94
Wilson Combat 77 Match HPBT	2,599	0.89

Bullet weight measured in grains, velocity in fps by chronograph, and accuracy in inches for best five-shot groups at 100 yards.



profile barrel has a versatile 1-in-7-inch twist rate. The barrel is also chrome lined, phosphate coated and equipped with a Daniel Defense flash suppressor.

Surrounding the barrel is the 15-inch-long SLiM Rail. This Type III hardcoat anodized KeyMod handguard is CNC-machined from 6061-T6 aluminum. And this handguard was certainly named appropriately. Those with smaller or medium-sized hands won't have to worry about getting a good grip around the SLiM Rail. There is an uninterrupted top rail, and running the length of the handguard in the 3, 6 and 9 o'clock positions are strips of KeyMod slots for attaching accessories. In addition to eliminating extraneous rails—saving ounces—these KeyMod openings chew out enough metal to contribute to Daniel Defense's weight-loss program. In total, the handguard shaves 5 ounces and offers improved barrel cooling.

The standard DDM4V11 is 5 ounces lighter than the DDM4V9, and the DDM4V11 LW is 4 ounces lighter than the DDM4V9 LW. In fact, the standard DDM4V11 is 1 ounce lighter than the



LEFT: The upper features a flat top rail for adding sights, such as Daniel Defense's sturdy A1.5 fixed rear sight, as well as a standard shell deflector and forward assist.



RIGHT: Daniel Defense's fixed front sight is machined from sturdy 6061-T6 aluminum.

DDM4V9 LW. This emphasizes Daniel Defense's slogan and philosophy of "Lighter, Stronger, Better."

As on Daniel Defense's quad-rail handguard, just in front of the upper receiver, the SLiM Rail has QD attachment points on both sides. With the KeyMod system's increasing popularity, more and more compatible accessories are becoming

available. By quickly and simply attaching a small length of KeyMod rail, users can hang what they want on the handguard.

As to the DDM4V11 LW's lower, on the six-position receiver extension you'll find Daniel Defense's new glass-filled polymer buttstock, which incorporates comfortable Soft Touch overmolding. Daniel Defense's similarly constructed pistol grip



- // Cutting edge, new design, ultra strong and lightweight
- // Simple, one screw fastening system
- // Made from 7075 extruded aluminum
- // Titanium barrel nut

- // Black Nitrided wedge system
- // Compatible with any Mil-Spec upper
- // Includes handguard, wedge system, titanium barrel nut, assembly tools and one M-LOK or KeyMod rail



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rounds out the lower receiver.

To make the carbine ready for the range, I added several accessories. Bravo Company kindly supplied its new Gunfighter Short Vertical Grip KeyMod, aluminum Picatinny rail sections and a QD sling mount. The Short Vertical Grip utilizes Bravo's superb Direct Mount KeyMod interface, requiring no tools for a tight, secure attachment.

Designed to center directly over the larger KeyMod opening (room for the QD's shaft), the QD sling mount is the lowest-profile QD mount I have ever worked with. I also used BCM rail pieces to attach a few things missing the KeyMod capability.

Primary Weapons Systems (PWS) was nice enough to send several sections of its 2-inch KeyMod-to-Picatinny adapters and a Harris bipod adaptor. All of these are precision machined with the quality I expect from PWS. I attached one of Harris' benchrest bipods easily.

For targeting I added a lightweight Aimpoint Micro T-1, which was backed up by Daniel Defense always-ready,

tank-like iron sights. Finally, using one of the PWS rail pieces, I attached a Browning Blackout light in Daniel Defense's Offset Flashlight Mount. With all of the high-lumen flashlights on the market, I wanted high output with lighter weight to complement the DDM4V11 LW. The Blackout worked well, blasting out 600 lumens—easily useable out to 200-plus yards—but weighing only 8 ounces with two CR123 batteries.

Range Time

I evaluated the DDM4V11 LW over three range sessions. I really enjoyed working with the DDM4V11 LW, and

“Some folks believe a lightweight barrel profile equals ‘lightweight’ accuracy because of the reduced barrel stiffness. But my work with the DDM4V11 LW disproved that theory!”

found its light weight pleasant. The DDM4V11 LW snapped quickly from target to target during CQB drills out to 50 yards and popped up easily from low and high-ready positions.

Some folks believe a lightweight barrel profile equals “lightweight” accuracy because of the reduced barrel stiffness. But my work with the DDM4V11 LW disproved that theory! To test the carbine's accuracy, I mounted a 3.2-17x44mm U.S. Optics LR-17 scope and found that its crystal-clear optics made shooting 100-yard targets almost like cheating.

Despite the mil-spec trigger, which weighed 6.1 pounds with some grittiness—not beneficial for ultimate target shooting—groups from three test loads were quite respectable. They all measured less than an inch, with the best coming in at 0.81 inches. These are five-shot—not three-shot—groups, requiring more effort for optimum performance. The mil-spec trigger worked well during CQB exercises and could be successfully pressed into service at longer distances.

As with other DDM4 variants, the DDM4V11 LW arrives with a Magpul PMAG. Magazines from nearly a half-dozen sources were unable to induce a hiccup. I could not find any way to get the DDM4V11 LW to falter, and all of this was with a “lightweight” package!

Final Notes

I really like Daniel Defense's new glass-filled polymer furniture, with the comfortable Soft Touch overmolding and easy buttstock adjustment. Obtaining a solid cheekweld is easy—and easy on the cheek—without causing any neck strains. Daniel Defense has a reputation for waiting until it can do something right before offering something new, and the company's new furniture is an excellent example of this.

I enjoyed everything about the DDM4V11 LW, including its lighter weight, trim handguard and easy, quick KeyMod accessory attachment system. With the lightweight barrel, the DDM4V11 becomes even more portable and easier to work with—something an officer guarding a perimeter or sprinting any distance to reach a problem will definitely appreciate. In fact, I suspect, given a choice, any officer would choose the DDM4V11 LW.

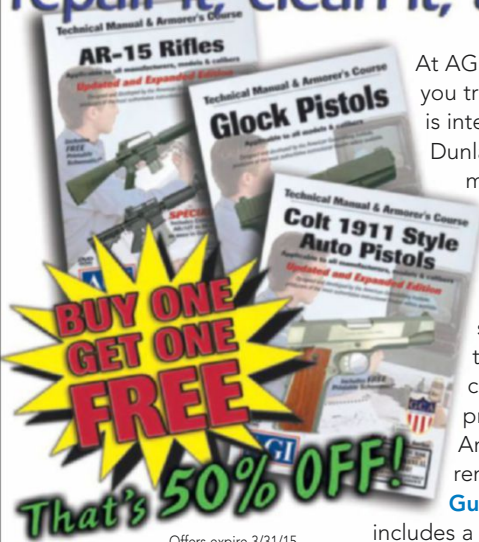
Daniel Defense's DDM4V11 LW proves the company's motto well. It's truly “Lighter, Stronger, Better.” For more information, visit danieldefense.com or call 866-554-4867. **SW**



At the range, the DDM4V11 LW proved accurate and reliable. The 3.2-17x44mm U.S. Optics LR-17 scope was an excellent partner for long-range targeting.

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ARMALITE M-15 PISTON 5.56MM

**NEVER MISS A BEAT
WITH ARMALITE'S NEW
RUGGED AND RELIABLE
PISTON-DRIVEN AR!**

BY DAVID BAHDE

Photos by Sean Utley





Armalite has pulled out all the stops with its new M-15 Piston, which features Primary Weapons Systems' proven gas piston operating system, an OSS Banner flash suppressor/muzzle brake and more performance-enhancing upgrades. Shown with an Aimpoint Micro T-2 sight.

Piston-driven rifles are popular for a number of reasons. Compared to direct-impingement ARs, they are generally more reliable, run cleaner and work better with sound suppressors. Most short-barreled AR rifles designed to be suppressed and used in adverse conditions are piston driven. With longer barrels, piston-driven rifles tend

to be soft shooting and remain reliable under harsh conditions with a broad range of ammunition. For many professionals and enthusiasts alike, rifles with gas piston operating systems are the best choice.

Most are short-stroke tappet systems of varying designs. Gas is directed from the barrel gas port to a piston driving a rod into the bolt carrier. Some use a rod attached

to the piston, while others have an intermediate rod with a very short "stroke" (the distance the rod travels). There are several variations of this design. Very common in short-barrel rifles, these systems solve many issues associated with a shorter dwell time, or the amount of time the bullet is in the barrel after passing the gas port. Sure, you can certainly use a short-barreled, direct-impingement

ARMALITE M-15 PISTON 5.56MM

AR, but adding a suppressor might hurt its reliability, making piston-driven guns more advantageous, especially in 5.56mm NATO.

Other systems try to mimic the well-known reliability of the AK-47 gas system. While some use bolt carriers and return spring changes, long-stroke systems retain the standard AR buffer and spring. The rod and piston are attached to the bolt, similar to the AK. This setup uses the best part of the AK system while maintaining a great deal of parts interchangeability with the AR. The gas tube is replaced with a piston tube, and the carrier key is replaced with one using a piston and rod. Having tested numerous rifles that utilize this long-stroke gas piston system, I know firsthand that it can be incredibly reliable, soft shooting and accurate.

Tommy Thacker, the new president at Armalite, was a top 3-Gun shooter as part of the Primary Weapons Systems/FN Team. Tommy "Tommy Gun" Thacker has garnered national recognition and great respect as a competitor, and he's brought much of that experience to Armalite. When it came time to build a piston-driven rifle, rather than cloning some existing system, it seemed simpler and more cost effective to employ a proven system. His experience with Primary Weapons Systems (PWS) rifles made that an easy decision. Armalite has now teamed up with PWS for its M-15 Piston rifle. In fact, PWS builds the upper receiver to Armalite's specifications,



ABOVE: The rear of the M-15 Piston's bolt carrier features raised rings that help prevent "carrier tilt," a problem with some early piston-driven rifles that affected their reliability.

RIGHT: The rifle comes with a Magpul MOE+ pistol grip, an ambidextrous safety and an endplate with sling hooks.



"THE TWO-STAGE trigger was smooth, crisp and predictable, allowing for pinpoint precision when needed."



which is then mated to an Armalite lower receiver, resulting in a reliable, piston-driven rifle made to Armalite's standards.

Gun Details

The Armalite M-15 Piston utilizes the proven long-stroke piston operating system created by PWS. Adjustable for conditions, suppressor use or various ammunition, the four-position gas regulator is easily accessed. An Isonite QPQ-coated, 16-inch, 1-in-8-inch-twist barrel chambered in 5.56mm NATO is mounted to the forged upper receiver. M4-style cuts ensure proper feeding. Featuring 1/2x28 threading, the barrel is capped with an OSS Banner Flash Hider Muzzle Brake (FHMB). Surrounding the barrel is a free-floating handguard with a long Picatinny top rail. The 3, 6 and 9 o'clock positions feature KeyMod slots for adding accessories. Magpul MBUS backup sights are included for mounting on the flattop upper receiver. Finally, AXTS' Raptor charging handle is installed for ambidextrous use.

The M-15 Piston's forged lower is flared and nicely contoured. It features an ambidextrous safety—a really nice touch. The two-stage precision trigger

SPECIFICATIONS

ARMALITE M-15 PISTON

CALIBER:	5.56mm NATO
BARREL:	16 inches
OA LENGTH:	33.6-36.9 inches
WEIGHT:	7.3 pounds (empty)
SIGHTS:	Magpul MBUS
STOCK:	Magpul STR
ACTION:	Piston-operated semi-auto
FINISH:	Matte black
CAPACITY:	30+1
MSRP:	\$2,149



PERFORMANCE

LOAD	VELOCITY	ACCURACY
Black Hills 55 FMJ	2,980	0.95
Hornady 75 TAP	2,600	0.85
HPR HyperClean 55 FMJ	2,942	1.15
Silver State Armory 77 OTM	2,741	0.75
Winchester 69 Match	2,987	0.60

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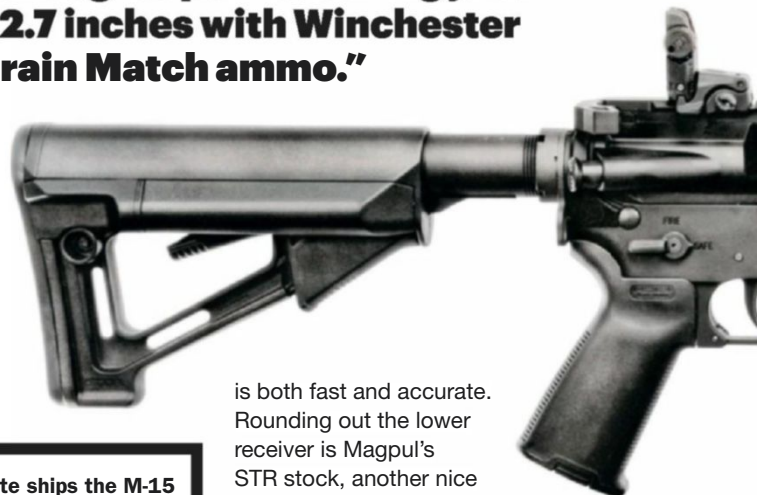
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“THE ARMALITE M-15 PISTON was able to maintain its sub-MOA accuracy at 300 yards, producing five-shot groups measuring just over 2.7 inches with Winchester 69-grain Match ammo.”



LEFT: Armalite ships the M-15 Piston with durable, easy-to-use Magpul MBUS flip-up sights as well as the Raptor ambidextrous charging handle made by AXTS.

BELOW: Primary Weapons Systems’ long-stroke gas piston operating system features a long operating rod that is attached to the bolt carrier, offering rugged reliability. The four-position gas regulator allows shooters to adjust the carbine for conditions, suppressors or various types of ammo.



The 16-inch, 1-in-8-inch-twist barrel features 1/2x28 threading for adding muzzle devices, and the M-15 Piston comes with an OSS Banner Flash Hider Muzzle Brake (FHMB), which effectively reduces muzzle flash and recoil for faster follow-up shots.



is both fast and accurate. Rounding out the lower receiver is Magpul’s STR stock, another nice upgrade, and one 30-round PMAG is provided. Most mil-spec parts are compatible with the rifle.

To test the Armalite M-15 Piston at the range, I added an Aimpoint Micro T-2 sight along with Silencerco’s Saker sound suppressor and Trifecta flash suppressor/mount. I used all three of these add-ons during various drills. To wring out the M-15 Piston’s long-range accuracy, I mounted a U.S. Optics SR-6 1.5-6X scope with a JNG Mil reticle. This scope is a personal favorite of mine for smaller-caliber carbines. The reticle’s segmented circle allows for CQB operation where needed and fast targeting. Mil lines comprise most of the measurements,

but line widths also include MOA measurements. The reticle is also mounted in the first focal plane, meaning it

is precise at any power. Used on several rifles out to 800 meters, this scope has proven rock solid. All group shooting and long-range testing was completed with this U.S. Optics scope.

Range Time

Repeatedly amazed at the accuracy of this particular piston system, the Armalite M-15 was equally impressive. Shooting from prone using a bag as a rest, my best group, measuring just 0.6 inches, came with Winchester’s 69-grain Match ammo. This is the norm for this gas system—I’ve



Surrounding the barrel is a free-floating handguard with a Picatinny top rail that mates with the upper receiver's for a long, uninterrupted optics-mounting plane. The handguard also features KeyMod slots in the 3, 6 and 9 o'clock positions for adding accessories as well as several lightening/cooling cuts.

produced similar results even with short barrels—but the Winchester ammunition was very consistent. It is as accurate as any match-grade .223 ammunition I've ever tested, and the 69-grain bullet is better suited to some barrel twist rates.

The rifle's accuracy with the 77-grain match ammo was similar, but this rifle was accurate with every load I tested, including Black Hills' 55-grain FMJs.

The Armalite M-15 Piston was able to maintain its sub-MOA accuracy at 300 yards, producing five-shot groups measuring just over 2.7 inches with Winchester 69-grain Match ammo. The weather was certainly not conducive to shooting groups, with plenty of wind and rain, so these results were pretty impressive. Given a calm day, my guess is that the rifle would create even tighter groups. Using the SR-6 scope, hits on a 6-inch steel target at 400 yards were consistent. With this kind of accuracy, this scope/rifle combination would prove viable for many mission profiles. The two-stage trigger was smooth, crisp and predictable, allowing for pinpoint precision when needed.

Aimpoint's Micro T-2 is one of the best choices you can make in a red-dot sight, especially where CQB is the norm. Moving through the shoothouse at my range, the T-2 was extremely fast on target. The M-15 Piston acquitted itself well, working easily around corners and through doors. Sure, shorter barrels have their advantages, but they are loud and can be little flamethrowers with standard flash

suppressors. Lately my preference has been for 16-inch barrels in 5.56mm ARs. There's no NFA paperwork to deal with, and these barrels offer effective ballistics and reliability no matter the gas system. Whether dedicated to entries or patrol duties, the Armalite M-15 Piston should prove excellent. Shooting indoors with the OSS Banner is better than a standard A2 flash suppressor with just a bit of recoil control, although it is a 360-degree muzzle device—just be careful from prone. Using the Silencerco Saker Trifecta flash suppressor was enjoyable. The muzzle blast was minimal and flash was almost non-existent. If you intend to use a Silencerco Saker suppressor, this would be my first choice, but it also serves well as a standalone flash suppressor.

Suppressing piston-driven rifles can be a mixed bag. Recoil can actually increase, especially with short-stroke tappet systems. Long-stroke designs like the kind used in this rifle are better, but you notice a difference. You still get gas back in your face—piston systems do not eliminate it. Yes, it can be better than a direct-impingement system, but not always. The more backpressure created by the suppressor, the more excess gas is sent your way. Silencerco's Saker is moderate when it comes to backpressure and gas blowback. The sound suppression is excellent, the recoil remains soft and it produces less excess gas than many models currently on the market.

Attaching and removing the suppressor is easy. Properly installed, the Saker just does not come loose. I've used this suppressor with several guns, and

it seldom shoots loose when properly tightened. Shifts in the point of impact are minimal when removed and reattached using the Trifecta three-pronged flash suppressor. The rifle's accuracy was unaffected even at the longer ranges. Longer ranges will see more difference in the point of aim (added elevation). Adding a pound to your barrel has consequences—there's no way to get around that—but just hold a bit higher or turn your scope knobs.

With the Saker suppressor, ejection became a bit less consistent, but the rifle remained accurate and reliable. On the square range, the M-15 Piston never malfunctioned, even during rapid fire. Running the trigger hard, it is pretty fast yet controllable. Two-stage triggers are great, but the second stage needs to be heavier for duty use. This trigger remained predictable and controllable over several high-speed drills. If you are going to move to the gaming world, a light 3-Gun trigger may be in order, but for most uses, the factory trigger will be just about perfect.

Final Notes

Given my experience with the PWS operating system, I expected top-notch accuracy and reliability—and the Armalite M-15 Piston certainly delivered. This is an excellent rifle suitable for duty, practice, competition or just about any use. Out of the box, it is equipped with an ambidextrous safety and charging handle, backup sights and an excellent stock. If you are in the market for a new Armalite and want a piston-driven rifle, the M-15 Piston is just the ticket! For more information, visit armalite.com or call 800-336-0184. **SW**

ELITE IRON BATTLEDOG

Strike silently with Elitelron's ultra-versatile new .30-caliber suppressor!

BY DAVID BAHDE

The last several years, sound suppressor companies have been focusing on quick-detach designs made primarily of titanium. Weight can be critical when it comes to point-of-impact shifts and operator comfort, making titanium very useful. Early steel suppressors weighed 2 pounds or more and caused substantial impact shifts. Entry suppressors weren't much better. Quick-detach designs are appealing, but

Thanks to its stainless steel construction, the BattleDog suppressor is durable yet lightweight.

they can have their issues. A simple, lightweight sound suppressor built to last a lifetime would be just about perfect, and Elitelron has come through with an excellent offering in its new BattleDog.

Elitelron began offering its expanded line of Bravo suppressors in early 2015. These suppressors are available in various lengths with either stainless steel or titanium construction for those interested in the lightest weight. I recently was able to test Elitelron's 6-inch-long, .30-caliber BattleDog sound suppressor.



The BattleDog ran well on several rifles, including a 300 Blackout Seekins Precision SBR with an X Products drum magazine, an Aimpoint ACO and a Law Tactical Gen 3 Folding Stock Adapter.

Rugged Simplicity

Stainless steel construction makes this suppressor very strong. As mentioned, it measures 6 inches long, an inch of which covers the brake, keeping things relatively short. The BattleDog is also well balanced, with clean lines and some checkering to help keep things tight. It weighs 16 ounces (within a couple ounces of

some titanium suppressors) and its build quality and finish are first rate. My test BattleDog came with two muzzle brakes—one with 5/8x24 threading and the other with 1/2x28 threading—which allowed me to use the suppressor on rifles of various calibers. Similar to Elitelron's Bravo1 design, covers allow for use without removing the brake. These steel caps have a nice look and are designed to send all the blast forward.

Much of the testing was completed using my Seekins Precision SBR in 300 BLK, which features a 9-inch barrel and a Law Tactical Gen 3 Folding Stock Adapter. To test the BattleDog's 7.62x39mm capabilities, I used CMMG's new Mk47 Mutant, an AR/AK hybrid. I also tested the suppressor with two precision rifles: a custom 6.5 Creedmoor build using Primary



The .30-caliber BattleDog is 6 inches long and weighs only 16 ounces. Despite its compactness, it offered a 28-decibel sound reduction during Elitelron's testing.



“Overall, this is an impressive little suppressor built just to my liking. It’s simple, strong and quiet.”

Weapons Systems (PWS) MK2 receivers and a Proof Research barrel as well as a Barrett MRAD chambered in .308 Winchester/7.62mm NATO. Finally, to test the BattleDog in select-fire, I used a Colt LE6940 upper installed on an M16 lower.

Quiet Striker

The BattleDog is designed to be used effectively on a number of calibers ranging from 5.56mm NATO to 7.62mm NATO. With the BattleDog installed, the Colt LE6940/M16 functioned flawlessly with a perceptible change in the cyclic rate. With just the brake installed, the Colt rifle ejected brass at about 3 o'clock. With the suppressor installed, the ejection moved to about 1 o'clock. Moving to

a heavier buffer would slow things down a bit, but the Colt ran flawlessly without a single malfunction.

The Mk47 Mutant's reliability was equally impressive with the BattleDog mounted. Recoil remained manageable, and the rifle worked very well. I've tested the Mk47 now with several suppressors, and the BattleDog was the most comfortable to shoot on this rifle.

Moving to the MRAD, an impact shift of about 0.6 inches occurred from the confirmed zero at 100 yards. This rifle uses a 24-inch barrel, making the BattleDog's smaller size a bonus. The rifle was very quiet, and the bolt did not stick during rapid-fire strings.

Five-shot groups at 300

yards remained at about 1.5 inches with no shift in the point of impact after 20 rapidly fired rounds. Testing on the 6.5 Creedmoor yielded similar results with little change in the point of impact.

In terms of my test rifles, the best match was the Seekins Precision SBR chambered in 300 BLK. Once installed, the BattleDog extended about an inch outside the handguard, making for an incredibly handy little rifle. This is the fourth suppressor I've tested on this rifle, and it is the best so far. While the BattleDog is a tad heavier than some titanium suppressors, its short length kept it very handy. It was very easy to work around my range's shoothouse with this SBR/suppressor setup. Only 3 ounces heavier than my titanium suppressors, the BattleDog offers a compact size with no appreciable change in balance. The SBR's accuracy remained stellar with



LEFT: Attaching Elitelron's unique cover cap over the muzzle brake directs the gases forward, away from the shooter.

RIGHT: The author tested the BattleDog as well as two easy-to-attach Elitelron brakes and the useful cover cap.



AIMPOINT CARBINE OPTIC

By David Bahde

Aimpoint's Patrol Rifle Optic (PRO) has been a huge hit among officers, with its simple design, solid mounting and reasonable price. Serving the needs of most professionals, it was a fantastic start for the latest design, the Aimpoint Carbine Optic, or ACO. Designed specifically for the modern sporting rifle, it provides the basics at an entry-level price.

The ACO features a 2-MOA dot in a fully waterproof housing. It runs on one DL1/3N battery for up to a year of constant-on use. Ten daylight settings

provide for use in most conditions. Parallax free, the anti-reflex coatings provide clarity. The ACO also offers unlimited eye relief, allowing for use in just about any position. Aimpoint has tested the ACO from -20 to 140 degrees Fahrenheit, meaning it'll operate in just about any condition, too. It attaches to your weapon's Picatinny rail with the included lightweight 30mm mount. Finally, it co-witnesses with the iron sights designed for most AR-platform rifles.

TANK TOUGH: I tested the ACO on my Seekins Precision SBR and CMMG's new Mk47 Mutant. Mounted to the Seekins, the ACO co-witnessed perfectly with the Daniel Defense fixed

front sight. Zeroing was simple, easy and fast. The ACO worked well in daylight and some low-light conditions. The mount is thinner and lighter than the PRO's, but it still locks up solidly. On the Mk47, the ACO was accurate, easy to zero and flawlessly reliable. If you want a battle-proven red-dot sight in a simple and affordable package, the Aimpoint Carbine Optic is about as good as it gets. For more information, visit aimpoint.com or call 703-263-9795.



both 110- and 125-grain loads, and it was very quiet. Subsonic ammunition was equally as accurate and even quieter. With the Law Tactical adaptor, the SBR measures a mere 23 inches with the stock folded, allowing it to fit just about anywhere. This rifle never stops impress-

ing me, and the BattleDog suppressor only made it that much better.

Ready For Battle

The BattleDog's sound suppression was excellent. It was at least as quiet as most of the longer suppressors in my

inventory. Unlike similar short designs, the BattleDog was very quiet. Elitelron will be offering a longer model, too, but this one was just fine. I don't have fancy sound-measuring devices, but shooting outside with the BattleDog presented no issues for my ears or those of my friends.

Bringing together Veterans and their Communities through Public Art

Each year more than 8,000 veterans commit suicide. That means in 2013 more vets took their own lives than have died in total on the battlefields of Iraq & Afghanistan combined. At Elder Heart the project is the program, the program is the solution and the solution creates awareness. Making it home is only half the battle.



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They knew that my spirit would be wounded. They said I would be lonely and that I would find no comfort in family, friends, elders or spirits. I would be cut off from both beauty and pain...and I would need healing in all of these things.
-Nez Perce Warrior on PTSD

“Elitelron’s testing yielded a 28-decibel sound reduction, and that is impressive for such a small suppressor.”



Shooting the Seekins Precision and Colt rifles was downright comfortable. Elitelron’s testing yielded a 28-decibel sound reduction, and that is impressive for such a small suppressor.

Moving the BattleDog between rifles was simple, and nothing ever came loose. Impact shifts were minimal compared to unsuppressed fire, and they were similar with removal and reinstallation. In my experience, every suppressor causes some shift in the point of impact, but the BattleDog held everything to under an inch at 100 yards with every rifle.

Overall, this is an impressive little suppressor built just to my liking. It’s simple, strong and quiet. It’s not too long or too heavy, and it works on most any rifle from 5.56mm to 7.62mm. And its MSRP of \$750 keeps it within reach for most. This is exactly what forward-thinking suppressor companies are starting to offer—suppressors designed for everyday shooters and hunters. Make sure to keep your eyes open for this and further offerings from Elitelron. For more information, visit eliteiron.com or call 406-244-0234. **SW**



The BattleDog’s 1.625-inch external diameter means it will fit under many popular handguards for a clean profile.

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ARMAGEDDON TACTICAL SOLUTIONS

Elite Sniper Experience training course delivers combat-proven small arms training and tactics!

BY DAVID BAHDE

I've spent over 20 years using sniper rifles, so it's difficult for sniper schools to "surprise" me, especially those open to civilians. Often more marketing than substance, they regularly disappoint me. So, when I was invited to Armageddon Tactical Solutions' "Sniper Experience" course, I felt a mix of emotions. My excitement to get back on a precision rifle was tempered with my typical skepticism. It did not take long, however, to turn my skepticism into a very broad smile.

Armageddon Tactical Solutions is a full-service training company based in Phoenix, Arizona, that can teach operators to use most weapon systems. The company offers rare tactical and operational training courses ranging from wilderness reconnaissance to scuba diving. While some courses are restricted, many are open to the public. The staff is former and current military operators.

The Sniper Experience course I attended was led by Jon "DQ" Geib, a former Army Ranger as well as a proven military sniper and competitor, and Chase Stroud, a world-class precision rifle shooter with numerous wins on the Professional Rifle Series Tour. These men provided an incredibly broad and experienced perspective.

The course took place at the Legion Operator Training Facility, which rivals

some of the military bases I've visited for previous training. Spread across 4,000 acres, the Legion facility includes a 1,000-yard known-distance (KD) range, a 2,500-yard unknown-distance (UKD) range and much more. There are drop zones, a shoothouse, 360-degree bays—you name it, they have it. For lodging, the Legion center features nicely appointed cabins.



"Hitting an IPSC-sized target at just shy of 1,400 yards is a great confidence-builder."



Armageddon Tactical Solutions packs tons of training into its Sniper Experience, including how to make first-round hits using a suppressed AR from a Little Bird helicopter while traveling at high speeds.

State of the art, Legion may be the best-kept secret in the training market.

The Sniper Experience

Armageddon Tactical Solutions' website says you will "train like a real U.S. military sniper," and we did. Copious amounts of PT, head games, low crawls and 15-mile "rucks" were thankfully absent, but all else was indicative of current training doctrine. This class was five days long and included lodging, food, ammo and pretty much everything else you would need. At \$4,000, it's not for everyone, but it is all-inclusive. Future classes are priced at \$2,800, but the course is one day shorter and you bring your own ammunition.

For this course, Caracal USA provided me with a CS 308 sniper rifle. Equipped with a U.S. Optics LR-17 scope, it was well suited to this class.

The first day started on the 1,000-yard range, with students getting solid elevation numbers from 100 to 1,000 yards. Armageddon strongly emphasizes using computers or smartphones. It is the way of the future, and it's current military doctrine. It was easy to use my phone and Applied Ballistics software. Once dialed in on stationary targets, we engaged moving targets out to 800 yards. The Caracal CS 308 proved incredibly accurate, making it

easy for me to get solid hits on targets out to 800 yards. The U.S. Optics LR-17 was also incredibly helpful at these ranges, thanks in part to its built-in level.

With targets dispersed at irregular ranges from 194 to 2,500 yards, the UKD range is a precision rifle shooter's dream. It remains the best way to learn to read the wind and range targets. Several methods were covered during the course. Hitting an IPSC-sized target at just shy of 1,400 yards is a great confidence-builder. My cold-bore hit at 870 yards again demonstrated the accuracy of the CS 308. Those shooting .300 Winchester Magnum rifles were getting regular hits at 2,000 yards—very impressive.

Stroud covered position shooting on barricades and from alternate positions. He's an incredible shooter that also happens to be incredibly entertaining. His insight helped during stressed courses requiring movement and unconventional positions. Taking plenty of notes and pictures, this course will comprise my training regiment for this next year. It was an excellent primer for competitive precision rifle shooting, and it offered truly solid basics.

Going Further

One of Armageddon's staff members, a current Special Missions Unit member,



ABOVE: The Sniper Experience instructors taught attendees how to shoot around barricades without exposing too much of their bodies to threats downrange.

BELOW: Instructors covered unconventional shooting positions and how to support the rifle using field-expedient means like tires.



ABOVE: After mastering the basics on the known-distance range, students moved to the unknown-distance range, drilling targets set out between 194 and 2,500 yards.

BELOW: A student uses his rifle's bipod and a barricade to lock his Caracal CS 308 bolt action in position—an effective method for supporting a rifle on the fly.



“With targets dispersed at irregular ranges from 194 to 2,500 yards, the UKD range is a precision rifle shooter’s dream.”

nicknamed “Pistol Pete,” provided carbine, shoothouse and tactical training. His training was a once-in-a-lifetime experience. We fired carbines on a stressed obstacle course and from a helicopter. A car was also provided to perform some ballistics testing through windshields, car doors and engine blocks.

Nivisys provided night optics, including a prototype thermal sight. Picking up heat signatures at close to 1,000 yards was amazing. Using the latest night-vision gear provided a perspective most never



ABOVE: Students attending the course learned to correctly read the wind and range their targets for accurate hits on the unknown-distance range.

RIGHT: The last day of the course, students got to engage a stationary target from an MH-6 Little Bird traveling between 10 and 30 knots—no easy feat!



A shooter takes aim after getting into position in the field. Armageddon’s instructors are all about realistic, practical training.

IWI Tavor Tactical Folder

Bringing cutting-edge Tavor technology to a combat-ready folding blade!

By Michael O. Humphries

While standoff weapon systems such as precision rifles are a must in today’s tactical world, sometimes there is a call for close-range combat. And, when faced with this type of situation, a rock-solid folding knife can mean the difference between life and death. IWI US, Inc. has recently introduced a new product for the U.S. market along these lines, the IWI Tavor Tactical Combat Folding Knife. It is designed as an ideal edged complement to an operator’s tactical kit. Manufactured by Guardian Tactical for IWI, the knife features robust and sturdy construction.

Measuring 9 inches in overall length when opened, the knife sports a tough 4-inch blade with a 3.75-inch cutting

edge. When closed, the knife measures 5 inches in overall length. The blade steel is CPM-154, and the grips are made from rock-solid G10 for enhanced durability and handling characteristics. The hardware is blackened stainless steel to match the black grips and blade steel, and the entire knife weighs in at 4.2 ounces.

As a testament to its hardiness, the knife comes with a lifetime warranty. The blade’s suggested retail price is \$324.99. For more information, visit iwi.us.



see. It also provided the chance to see how clear U.S. Optics’ scopes are. Caracal’s Jeff Spalding was able to engage targets out to 866 yards with no night-vision aids and out to 1,170 yards with a clip-on Nivisys NSV-80 unit.

The nighttime ATV course was a blast. Driving at speed through corners, back roads and in the sand using night vision is incredible. Surprisingly easy, it proved why our military “owns the night.” Using what amounts to 20-year-old PVS7 NVGs with great success, it is hard to imagine how it’d be with the latest night-vision.

We spent the last day shooting from an MH-6 Little Bird helicopter with a

suppressed carbine. We attempted some increasingly fast runs on a stationary target. Starting at 10 knots, we moved up to 20, then 30 knots. It was increasingly difficult; this kind of shooting is definitely an acquired skill. In fact, two current Army Ranger instructors in attendance had never done this kind of shooting before. That just goes to show how rare this experience was. Pistol Pete and Jon "DQ" Geib showed us how it was done. At 10 to 30 knots, they never missed their first shots and seldom missed after that. Coming in at 80 knots and flaring, they hammered the target. It was very impressive. I'm really glad they are on our side!

Sniper Pros

If you've decided to save your money for a training school, attend this one. Armageddon Tactical Solutions has done

"We spent the last day shooting from an MH-6 Little Bird helicopter with a suppressed carbine."

a fantastic job of mixing practical training and just plain fun. The atmosphere and attitude is excellent, the instruction is professional, and the experience is incredibly positive. The staff's experience and credentials are unmatched. New shooters will remember this course forever; experienced shooters will take back truly useful information.

I might have started the course as a skeptic, but I quickly became a convert. This Sniper Experience class was incredibly fun and useful. It provided tons of memorable experiences. Definitely take this course if you can. You will definitely not be disappointed, and you just may learn something! **SW**

FOR MORE INFORMATION
Armageddon Tactical Solutions
atacsol.com; 757-447-5868

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BLACK

By Robert A. Sadowski

Photos by Sean Utley

A Weatherby Black Reaper TR shotgun is shown diagonally across the frame. The background features a large, jagged piece of concrete with a bright red, textured interior, suggesting a recent impact or explosion. The shotgun has a silver-colored receiver with a black barrel and a black pump handle.

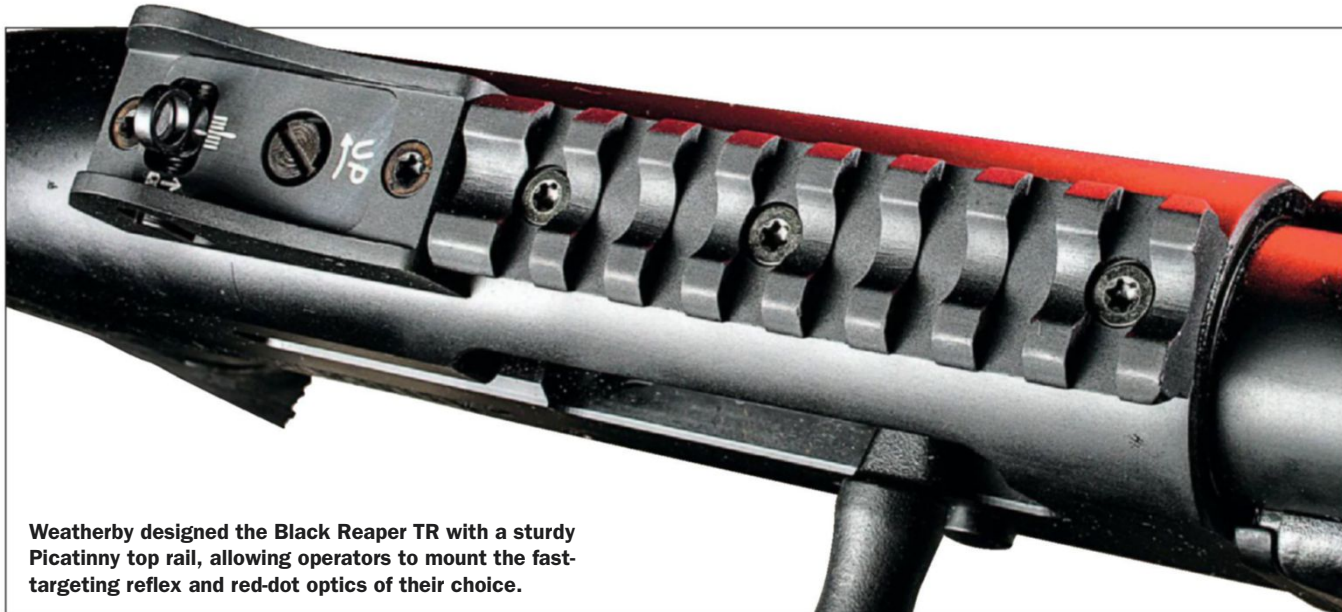
Something wicked this way comes—Weatherby's new WBY-X SA-459 Black Reaper TR, a mission-ready shotgun packing 12-gauge power, semi-auto speed, and 21st century ergonomics for combating today's threats. Its menacing looks are only surpassed by its performance.

Shotguns are highly effective weapons because they can be loaded for exactly what your mission requires—slugs for distance, buckshot for close quarters, even specialty loads in some cases.

The Weatherby WBY-X SA-459 Black Reaper TR (Threat Response) is the type of semi-automatic shotgun I'd like to have on hand for serious tactical work. Though the shotgun has Turkish blood—it is made by ATA in Istanbul, Turkey—it has the Weatherby name on it, and the Black Reaper only adds to the company's reputation. The shotgun's name is appropriate, too, as the Reaper shredded through targets without a single stoppage. That's the type of threat response required by tactical operators.

REAPER TR

WEATHERBY SA-459 BLACK REAPER TR



Weatherby designed the Black Reaper TR with a sturdy Picatinny top rail, allowing operators to mount the fast-targeting reflex and red-dot optics of their choice.

“THE REAPER FEELS LIVELY IN HAND; IT’S VERY EASY TO SHOULDER AND MANEUVER WITH.”



The author's test shotgun came fitted with a ported skeet choke tube. During testing at the range, the porting helped reduce muzzle rise and create good, consistent patterns at 25 yards.

The Black Reaper is a striking shotgun, which is understandable coming from a company like Weatherby that has its own unique aesthetic characteristics. Weatherby chose to give this Threat Response shotgun a stock and forend covered in Proveil Reaper Black. As mentioned, to create the Black Reaper, Weatherby partnered with ATA, which manufactures gas-operated, semi-automatic shotguns as well as inertia-driven shotguns, over/unders and pump actions. The company exports its products to more than 50 countries around the world.

ATA's shotguns are known for their high quality and excellent workmanship. There is a whole list of specifications that Weatherby holds the manufacturer to, including the types of materials used, machining tolerances, metal finishes, etc. The most important part of the process comes when Weatherby sends a gunsmith over to Turkey to perform inspections prior to shipping guns. That level of quality control ensures that the customer is getting a firearm that lives up to the Weatherby name.

Gun Details

The receiver is CNC-machined from aircraft-grade 7075-T6 aluminum alloy for strength and reduced weight. The bottom of the receiver had a slight edge, but I did not cut or abrade my thumb and fingers during fast reloading. At only 6.5 pounds

SPECIFICATIONS

WEATHERBY WBY-X SA-459 BLACK REAPER TR

GAUGE:	12; 3-inch chamber
BARREL:	18.5 inches
OA LENGTH:	39 inches
WEIGHT:	6.5 pounds (empty)
STOCK:	Synthetic
SIGHTS:	Fiber-optic front, ghost ring rear
ACTION:	Semi-auto
FINISH:	Black/Proveil Reaper
CAPACITY:	5+1
MSRP:	\$749



PERFORMANCE

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13.00
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SLUG

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Buckshot patterns in inches at 25 yards. Slug accuracy in inches for best three-shot group at 50 yards.



unloaded, the Black Reaper was light and handled well. A matte black finish on both the receiver and the barrel complements the patterned stock and forearm. The bolt, made of steel, is blued.

The Black Reaper's pistol-grip stock and forend are made of polymer. The molded, checkered forend feels thin in hand with or without gloves. Checkering is on each side of the forend, and I could easily control the shotgun with my non-shooting hand when firing rapidly. The one-piece pistol-grip stock comb drops more than a traditional-style stock. With the butt in my shoulder pocket, the iron sights came up quickly to my eye level, making this Weatherby fast on target. The butt pad is a good, 1-inch-thick, soft rubber unit that helps absorb recoil. The edges of the recoil pad are radiused, so there are no sharp edges to catch on gear or clothing. A rear sling swivel stud is installed on the stock, and the forward stud is located on the metal magazine cap. The pistol grip is molded rubber with a smooth frontstrap and a flared bottom. The backstrap has coarse grooves and is arched like the mainspring housing on a Government Model 1911A1. It filled my average-sized hand well. The pistol grip helped me shoot the weapon fast and accurately at the range.

The trigger housing, made of polymer, drops out of the receiver for easy cleaning by removing one pin. The trigger safety button, located directly behind the trigger, uses a familiar cross-trigger block. The safety button is round, and a red ring appears when the shotgun is ready to fire. The trigger is smooth while the operating handle is large and hourglass-shaped, providing the user a good grasp to rack the bolt back.

The steel carrier is blued steel with round edges, so loading will not cut or abrade your fingers. A slot in the carrier allows the shooter to visually check to see if a shotshell is on the carrier. The carrier lock button is located on the forward-left side of the triggerguard, just below the receiver. The button is round and acts like a lever. It takes a little effort to press it, and doing so allows a shell to be released from the magazine and rest on the carrier.

The shotgun is built with a 3-inch chamber, so shooters can use both 2¾- and 3-inch shells. The 18.5-inch barrel makes the Black Reaper very maneuverable. At the muzzle is an extended, improved cylinder choke tube. My test sample came with a skeet bore tube. It's ported all around the circumference.



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The rubber pistol grip is aggressively grooved with an arched backstrap for shooting comfort, making it easy to control the Reaper in rapid fire.

The raised front sight post holds a green fiber-optic insert protected by metal wings. The ghost ring rear sight is fully adjustable and clearly marked so you know which way to turn the adjustment screws. A flat-blade screwdriver is needed to adjust the iron sights. The rear sight is mounted on the receiver along with a Picatinny rail for mounting an optic, such as a red dot or reflex sight.

The Black Reaper's gas system is designed with a unique dual-valve system that lets a user quickly adjust for different rounds, from light to heavy loads. This dual-valve system helps manage felt recoil. The system is easy to clean, too. The adjustment valve fits in the gas port cylinder, which also slips around the magazine tube. The valve only fits in one way so there is no confusion. The valve powers a single slide arm.

To disassemble the shotgun, first close the bolt so it is fully forward, then unscrew the magazine cap counterclockwise. With the magazine cap removed, slide the forend toward the muzzle and off the magazine tube. Then pull the barrel out of the receiver and off the magazine tube. The bolt is removed from the receiver by first slightly pushing back on the bolt face and pulling the bolt handle free from the bolt. Control the bolt as it comes forward and out of the receiver, along with the slide and slide arm off the magazine tube. A hammer and punch is needed to tap out the one retaining pin, then pull down on the triggerguard assembly. Make sure the hammer is in the cocked position when reassembling.



ABOVE LEFT: The Weatherby SA-459 Black Reaper TR features a raised front sight post with sturdy protective wings and a highly visible fiber-optic insert for quick targeting. **ABOVE RIGHT:** The ghost ring rear sight, just aft of the top Picatinny rail, is fully adjustable for windage and elevation. It works well with the fiber-optic front sight.



The Black Reaper TR's receiver is CNC-machined from aircraft-grade 7075-T6 aluminum alloy for durability and light weight. Also note the easy-to-reach charging handle.

Range Time

The Reaper feels lively in hand; it's very easy to shoulder and maneuver with. At the range, I loaded the Reaper two ways. The first method, with the bolt fully forward, involves pushing shells into the magazine tube. When it's full, press the carrier lock button, which releases a shell onto the carrier, then rack the bolt to chamber a round. The second option is just like the previous method, but you lock the bolt rearward, drop a shell in the chamber and press the bolt release button. Then load the magazine tube and continue like the first method. I could easily load the Reaper with my support hand while my strong hand held the weapon by the pistol grip. I did fire some reloaded shells, and even those resized shells fed into the magazine with ease. The shell latch makes it an audible click to tell you the shell is secure in the magazine tube.

To get used to the Weatherby, I stuffed it with reloaded shells carrying an ounce of #8 shot. The Reaper chewed through the shells, spitting them out and tearing my cardboard targets to shreds. Moving on to Winchester's military-grade 00 buckshot and targets at 25 yards, the

Reaper consistently created patterns measuring about 13 inches in diameter. As I increased the distance, of course, the pattern size increased. When you choose your load, remember to test it to see how it patterns. You want to be sure the 00 buckshot hits the intended target and does not miss because of a wide pattern. At 25 yards, I also tried Winchester's PDX1 Defender load, which is a 1-ounce slug loaded with three plated 00 buckshot pellets. The Reaper was dead on with this load. When shouldered, the Reaper's ghost ring sights came quickly to my eye and I was able to recover fast after firing and get back on target. The gas system helped mitigate felt recoil.

To test the shotgun's accuracy with slugs, I set up targets at 50 yards and settled behind a benchrest. Even at 50 yards it was easy to spot the big holes the slugs left in the paper target. Slugs shooting can beat up a shooter, but the recoil with the Weatherby was easy to take.

The Weatherby SA-459 Black Reaper TR shotgun performed well with a variety of factory and handloaded shells. For more information visit weatherby.com or call 805-227-2600. **SW**

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SKYBORNE WARRIORS

**Learning to drop behind enemy lines with the
U.S. Army's elite Airborne School!**

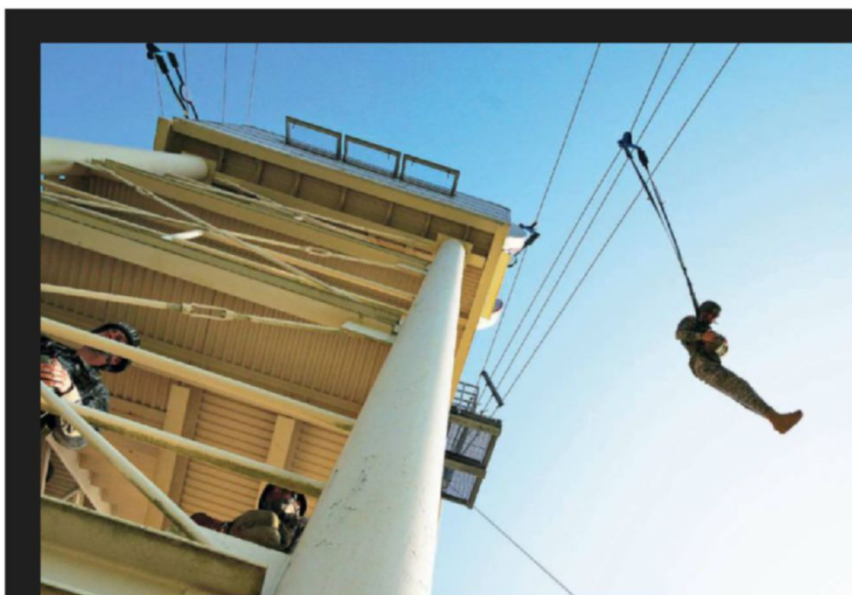
BY JAY PINSKY

DoD Photos

In warfare, there are a few ways to get behind enemy lines. For centuries the choices were to go around them, which ate up valuable time, resources and money, or go through them, which ultimately cost too much blood. Tacticians looked to the heavens for a better way, and there was one—the paratrooper.

“We used to march them straight into battle, and now we can get 64 guys behind enemy lines with one aircraft instead of three trucks,” said paratrooper and Airborne School instructor U.S. Army Staff Sergeant Matthew Gobble, 1st Battalion, 507th Parachute Infantry Regiment.

The introduction of the paratrooper, a highly trained soldier who falls from the sky, changed the battlefield beginning in World War II. “When you look at a paratrooper, you know he’s hardcore,” said Gobble. “He’s going to be hard-charging,



The Basic Airborne Course utilizes several structures to prepare U.S. military personnel for safely parachuting behind enemy lines, including a 34-foot-tall tower students zipline from.

“During jump week, candidates must successfully complete...five jumps from an altitude of 1,250 feet from either a C-130 or C-17 aircraft.”



and your logic is, if he's going to jump out of an airplane into combat, then his fear factor is pretty low.”

According to U.S. Army historical documents, the idea to drop soldiers by parachute into combat can be traced back to the U.S. Army's General Billy Mitchell, who, following the macabre experience of trench warfare in World War I, proposed the idea and demonstrated it at Kelly Field in San Antonio, Texas. The U.S. Army said six soldiers parachuted from a Martin bomber, safely landed and, in less than three minutes after exiting the aircraft, had their weapons assembled

and were ready for action on the ground.

Good idea, right? Not to us, not back then. According to U.S. Army documents, the United States officials who attended the demonstration dismissed the idea of paratroopers, although it apparently wasn't a unanimous decision. The Germans and Soviets, however, were impressed. In fact, the Soviets moved the fastest and had paratroopers as part of military maneuvers as soon as 1930. During the early stages of WWII, the Germans used paratroopers in war so successfully it led to American military forces scrambling to catch up and implementing various stages of para-

trooper training programs. As such, May 15, 1942, the U.S. Army Airborne School was officially formed and the United States military has been dropping soldiers via parachute ever since.

Going Airborne

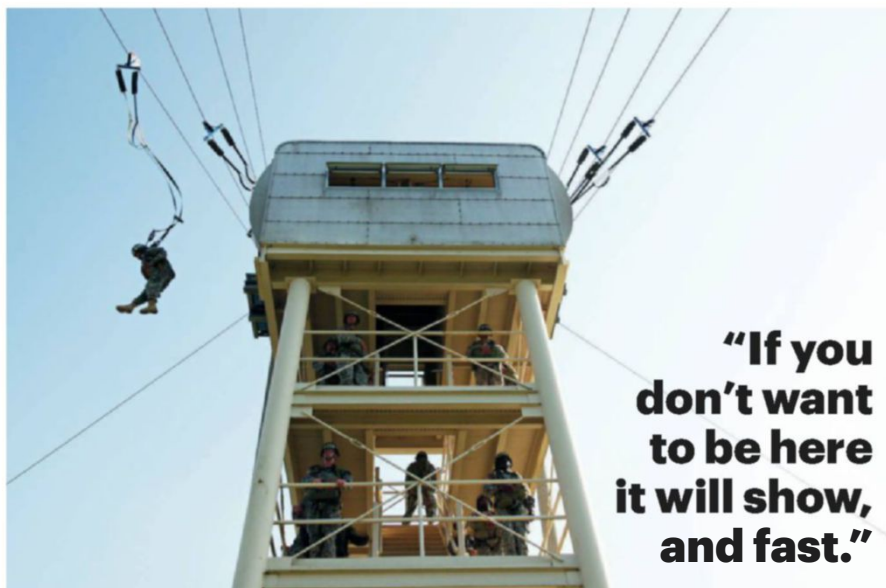
Today, the U.S. Army's 1st Battalion, 507th Parachute Infantry Regiment runs the U.S. military's Basic Airborne Course at Fort Benning, Georgia. The school is three weeks long and combines both officers and enlisted men and women from American and foreign militaries all together in the same basic training



A jumpmaster inspects a student's rigging before one of five jumps from a C-130 or C-17 aircraft.



Basic Airborne Course students wait in their gear before loading into a plane for a training jump during “jump week.” The 1st Battalion, 507th Parachute Infantry Regiment runs the course at Fort Benning, Georgia.



"If you don't want to be here it will show, and fast."

ABOVE: During "tower week," the second phase of the training program, Basic Airborne Course students must successfully master mass exit procedures from the 34-foot tower (shown) as well as the Swing Lander Trainer.

ABOVE RIGHT: Generally, two of the jumps during jump week are "combat equipment jumps" in which the jumper carries a ruck sack and a dummy weapon.

BELOW RIGHT: The 1st Battalion, 507th Parachute Infantry Regiment trains soldiers, sailors, airmen and Marines to conduct airborne operations anywhere.



program at the same time.

The first session is known as "ground week," where students learn the basics of being an airborne soldier. First things first, however, as every student, man or woman, and from any military branch must pass the Army Physical Fitness Test (APFT) for the 17 to 21 age group. According to Gobble, jump school takes its toll on the students mentally and physically, so peak physical fitness is essential for soldiers to make it through the school and be an effective paratrooper back with their units. In addition to being fit, students practice on a mock door, a 34-foot tower and a lateral drift apparatus during ground week. Most students who wash out of jump school do so in the first week due to the high fitness standards or not being able to grasp the training, according to Gobble.

"Sky diving didn't prepare me for this," said Basic Airborne Course student U.S. Army First Lieutenant Sergio Villarreal, a Special Forces candidate required to complete Airborne School before he can continue his quest to wear the U.S. Army's coveted Green Beret. Villarreal

said despite all of the training being the same as far as how to be a paratrooper, going through the program as an officer means it's a little bit harder because leadership doesn't stop just because you're in a student status. "As an officer you are learning how to do something for the first time just like everyone else, but now you're in charge of it as well. You have to be ready first."

The second week is known as "tower week." Here jump school candidates must master the Swing Lander Trainer (SLT), mass exit procedures from the 34-foot tower, how to manipulate the parachute from the 250-foot tower and continue to pass all physical training requirements to move on to prime time, or what is known as "jump week."

Jump Week

During jump week, candidates must successfully complete not one, not two, but five jumps from an altitude of 1,250 feet from either a C-130 or C-17 aircraft. Gobble said a student's first jump will usually be his or her best jump technically because they're too scared or nervous

not to do exactly as they've been trained. "The first and last jumps the students make are their most dangerous," said Gobble. "The first because they've never done it before and their last jump because they're cocky," said Gobble.

Villarreal said the last jump was the hardest for him. "Our last jump is done with a combat load, which is about 90 pounds, and it's awkward," he said. "On my first jump I was just glad my parachute opened and I concentrated on the basics of getting out of the plane."

Ideal paratrooper candidates, according to Gobble, are people who pay attention to detail, learn from their mistakes and absolutely want to be here. "If you don't want to be here it will show, and fast," said Gobble.

The last known conventional use of paratroopers occurred in January 2013 when 250 French paratroopers from the French army's 11th Parachute Brigade jumped into northern Mali to capture the city of Timbuktu. And, thanks to the U.S. Army's Airborne Course, our warriors are ready to come charging from the skies at a moment's notice if needed as well. **SW**

FORCE ON FORCE GUNFIGHTING

ATK's high-tech ammunition can prepare you for real-world shootouts!

BY FRED MASTISON

With the explosive growth in the firearms industry in the past few years, it seems that expansion is everywhere. It seems every manufacturer has an AR or striker-fired pistol in the mix. There is one corner of the industry, though, that deserves more attention than it has received—namely, force-on-force training ammunition and supplies. That is chang-

ing, thanks to ATK. Well known throughout the law enforcement community and shooting industry as the producer of Federal Premium and Speer LE ammunition, ATK has entered the force-on-force market with a roar.

Randy Clifton, the director of sales and marketing and a training manager for ATK's Force On Force line of ammunition, has an extensive background in the arena. He is a former DEA agent and

FBI Academy instructor. He's also the co-author of the *Simunition Manual* and is the author of the *Force on Force Scenario Instructor Manual*. This background is one of the driving forces behind the major factors in ATK's expansion into this market. The company believes it can offer a superior product to the scenario-based training/force-on-force market. With years of experience in dealing with other products, Clifton's background has proven to

"...THE 5.56MM FORCE ON FORCE ROUNDS CAN REGULARLY PRODUCE 1-INCH GROUPS AT 40 FEET."

Straight 8 Photo



ATK's new Force On Force rounds are designed to be fired from specialized systems like the Glock 17T (shown), and ATK also offers conversion kits for standard weapons.

BCM Gunfighter AR Stocks

By Jorge Amselle

Bravo Company Manufacturing (BCM) already makes some great upgrades for the AR platform as well as extremely well-made complete rifles. I exclusively use the company's Gunfighter charging handles on all of my ARs. While there is certainly no shortage of aftermarket and high-quality AR stock systems on the market, there is always room for improvement and the new BCM Gunfighter stock is most certainly that.

Professionals design BCM products for hard use, and they take their product development seriously. The new Gunfighter stock spent more than a year in development and testing before it was released. This included some brutal drop testing with the stock installed on a rifle onto concrete from more than 10 feet up.

The stock is collapsible using the standard six-position, mil-spec buffer tube and extremely aerodynamic, with nothing protruding that could snag or hang up on any gear. The design also incorporates a removable tab that can hold a rubber band to secure the sling against the stock and keep it out of the

way when not in use. Other features include an ambidextrous single-point sling attachment point, a standard sling strap slot, a rubber butt pad and a modular design that allows for future customization options.

The length-of-pull adjustment tab is very well designed and simple to use. It also has a much stronger position retention tab than you find on standard AR stocks and weighs only slightly more than the GI stock. The BCM Gunfighter stock is available in black, Flat Dark Earth, foliage green and the increasingly popular wolf gray. For more information, call 877-272-8626 or visit bravocompanyusa.com.



Bravo Company Manufacturing's new Gunfighter AR stock is designed with fast operation and snag-free simplicity in mind. Note the ambidextrous sling point and recoil-absorbing rubber butt pad.

be a solid asset in ATK's decision to move into the training round market.

Perfect Practice

ATK's line of Force On Force ammunition falls into three categories:

reduced-energy marking rounds, non-marking rounds and blanks. The rounds are designed to be fired from converted weapons such as the Glock 17T or those converted previously to run with Simunition rounds. This is a solid move on ATK's

part, as there is no need for many agencies to buy new conversion kits when they transition to ATK Force On Force rounds.

For those who have spent a great deal of time in shoothouses, there are two major factors to help these rounds stand apart. First is that all of the Force On Force rounds are lead free and safe for indoor use. Secondly, there is no gunpowder, which all but eliminates the smell associated with indoor training. The 9mm and 5.56mm marking rounds are available in five colors: red, blue, yellow, green and white. Other colors are available upon request. They are biodegradable, environmentally friendly and cold-water washable. You can simply wipe off training gear and uniforms.

One very special component of the 5.56mm design is the inclusion of a copper driving band. This band on the plastic projectile actually engages the rifling of the weapon and greatly improves accuracy. For example, the 5.56mm Force On Force rounds can regularly produce 1-inch groups at 40 feet. This



The pain involved with force-on-force training rounds is a good reminder for officers to seek cover whenever possible. ATK's new Force On Force ammo provides a cost-effective training option.

Straight & Photo



“NON-MARKING ROUNDS WILL ALLOW SMALLER AGENCIES THE OPPORTUNITY TO RUN FULL-SPEED TRAINING SCENARIOS IN A VARIETY OF STRUCTURES.”

This offers much more realistic training and avoids the “spray and pray” that sometimes happens in force-on-force simulations because of accuracy issues.

Game Changers

Over the years, 5.56mm training ammunition in general has gained a bad reputation. This is based purely on the standoff distances required to safely and effectively use it. There have been many colorful discussions between students when one is shot too closely with 5.56mm training ammunition. ATK has changed that. With a safe standoff distance of only 1 foot, the company has now brought the AR solidly back into the training realm. With a manageable velocity of 450 fps, the rounds provide a pain penalty without the real dangers experienced with other rounds used at close distance. Using these rounds requires nothing more than installing a training bolt carrier group. ATK makes a high-quality bolt carrier group that converts any AR-platform weapon into a non-lethal training tool. All traditional functions remain unchanged.

The real game-changer that ATK has developed is a non-marking round. Already available in 9mm, the 5.56mm round will be released soon. The marking section of the round is replaced with

a UV-cured material that is safe to use indoors. Cleanup is simply picking up the spent aluminum cases and recycling them. This is a major advancement because it allows almost any structure to be turned into a dynamic shoothouse. With the astronomical costs associated with live-fire shoothouses, most agencies forego their development. Additionally, even with extremely focused safety protocols, shoothouses are extremely dangerous. Non-marking rounds will allow smaller agencies the opportunity to run

ATK's line Force On Force ammunition falls into three categories—reduced-energy marking rounds, non-marking rounds and blanks—providing a range of options for LE agencies on a budget.

full-speed training scenarios in a variety of structures.

Expert Trainers

To ensure that clients get the most out of the product, ATK offers an Instructor Certification Program. Students are taught how to safely, efficiently and effectively conduct reality-based training. It is a three-day intensive course that is preceded by an online class. Agencies can also contact ATK for half-day familiarization programs on its products. ATK's professional staff brings years of experience to the table. They not only share technical aspects of training, but also offer suggestions on how to make it run smoothly and safely.

The primary reason that there has not been massive growth in the force-on-force ammunition market is simple. It is hard to make. It is a major engineering and research and development undertaking to manufacture a functional training round. Few companies have the desire or resources to pull it off. This is a two-fold challenge. First is the development of ammo that passes the “Goldilocks” test. It can't be too hard or too soft. It has to be “just right.” Second is the development of an AR bolt carrier group that allows the special ammo to run in any AR rifle. ATK has made a substantial investment in its new undertaking, and it appears to be paying off. For more information, visit forceonforce.com or call 800-379-1732. **SW**

ATK makes a specially designed bolt carrier group that converts any AR into a non-lethal training tool. The traditional AR functions remain unchanged.



AIR WAR SURVIVOR

An airman's WWII odyssey with the bombardiers who ended the war.

BY FRANK BARCLAY, WITH LAMAR UNDERWOOD



Frank Barclay (left) stands beside "The Great Artiste" with Colonel Rick Milligan.

"Tibbets had been hand-picked to form a special B-29 group to bomb Japan."



USAFHRA Photo

When we first stepped through the door of the hanger, the sight before us slammed into our senses like some huge unworldly apparition. My wife, Betty, and I were standing before a smoothly shaped, curved cloud of light-blue texture. I blinked. "No," my aging eyes told me, the "cloud" was dark blue. No, it was pale gray. Whatever color it was, the mysterious object seemed so alien to anything we had ever seen that it certainly did not belong here, not in this building that sat innocently in the pleasant Missouri countryside. There was something that seemed almost God-like about the structure, as if it could not have been created by the hands of man.

As we watched, taking in this amazing vision, panels swung down from the bottom of the enormous "cloud," opening its great belly. We were invited to step for-

ward and a moment later we were staring up into the operations center of America's most secret, most effective and costly bomber every produced. The Northrop Grumman B-2 Spirit, known throughout the world as the Stealth Bomber.

Betty and I were in a unique situation that day in 2013. Civilians, no matter how powerful or famous, are never permitted to stand where we were in the B-2 hanger, able to actually reach out and touch the aircraft's skin, to peer into the amazingly complex aircraft interior. Our security clearance came directly from U.S. Air Force and the commander of Whiteman Air Force Base, home of 19 B-2 bombers, each housed in its own environmentally controlled hanger. A 20th B-2 is stationed at Edwards Air Force Base in California. The planes comprise America's 509th Bomb Wing.

My association with the original 509th was what had brought us here as guests

on this amazing visit. The welcome began when our host, Colonel Rick Milligan, picked us up at our Missouri home and brought us to the base. At the Whiteman gate, we posed for a photo beneath the actual B-29 bomber named "The Great Artiste," which flew with the Enola Gay in the Hiroshima atomic bomb attack. It's a plane with a history tied to its unit, the 509th Bomb Group Composite, which is made up of the B-29s, the pilots and crews who flew them great distances in dangerous bombing raids on Japan in World War II. Their achievements are now part of military history.

These achievements are also chronicled in my own 93 years of memory. For, although I have forgotten much in those years and, with the greatest sadness I have ever known, lost my beloved wife of 70 years earlier this year, my chest of great memories is very rich.

As a survivor of very special Air Force

history, I was very moved to be invited to Whiteman, and thrilled to the core when the Colonel presented me with a new pair of wings to replace those I had lost. I had once worn them proudly, and I had flown with the B-29 heroes of the 509th who brought Japan to the surrender table.

Elite Training

I came to the U.S. Army Air Corps (later called the Air Force) as a raw young man who already had a professional interest in photography, and a tremendous interest in flying—because it sure beat marching. Newsreels in movie theaters (that's how we got videos in the pre-television eras) had convinced me that the fate of being drafted and put into the foot-slogging, pack-carrying infantry was not for me. One of my best friends had been killed in a light-plane crash right in front of me at a local airport, but that did not change my view that flying in the U.S. Army Air Corps beat blisters and bullets in the infantry.

I was told that enlistees sometimes had their choice of branch of service, so I signed up, hoping to get into aerial photography. I had a mentor at the local newspaper who had guided me through training with a Speed Graphic camera. I loved my job on the paper, but with the draft staring me in the face, I decided on enlisting and taking my chances on getting into the Air Corps.

All this history was very much on my mind last year when Betty and I stood there in the B-2 hanger at Whiteman gazing up at this amazing airplane that had a crew of two and delivered more firepower over greater distances and much higher altitudes than entire fleets of previous bombers.

At that moment, I could not help thinking about pigeons. Yes, amazingly enough, pigeons! They were my first troops, my first command. Handling pigeons was my first job in the Air Force.

These weren't ordinary city park pigeons. They were homing pigeons, also called carrier or messenger pigeons. This remarkable bird has the innate, mysterious ability to return to its nest or coop from virtually any location where it is released. Flights of over 1,000 miles have been documented, and races are popular with pigeon owners. Our Air Force pigeons were donated by private owners, including celebrities like Roy Rogers and Andy Devine. These birds were distant relatives of numerous heroic pigeons of World War I, such as the bird called "Cher Ami," awarded the French *Croix de Guerre* for delivering 12 important messages despite being wounded.

The Air Force had launched an experimental program to see if homing pigeons could be used as messengers from planes forced down or shot down. Could the pigeons fly back to base carrying a

message on the stricken plane's location and condition? Helping answer that question was my duty for months in 1943 as a corporal at Kern County Airport, near Bakersfield, California.

I came there from training to be an aerial photographer at Lowry Field in Denver, where we flew mostly in B-17s, the "Flying Fortress" bombers. Then I had started training to become a pilot at Luke Field, Phoenix. I left Luke, not as a "wash-out," but because I had been selected as one of 20 finalists in an Air Force program to train personnel for advancement to eventual general officer rank. We were to attend top civilian colleges on special assignment. My orders to report to Stanford University, in Palo Alto, California, in September came through in the spring and with them an assignment to spend the summer with the homing pigeons.

Like old Army units that had to stable and train horses, our unit worked with pigeons. The birds had coops and were fed and watched over by myself and the 171 men and 11 officers comprising our unit. In our mission, we experimented with actually releasing the birds from planes. The results were not good—torn-up feathers, battered bodies. In looking for alternate methods we came up with constructing boxes that could carry the birds so they might survive a crash. We loved those birds, took care of them with zeal and knew each one by name.



Barclay (right) and his friend, Lieutenant Warren Yarnall, taking out some hawks preying on their pigeons.



Barclay scores the accuracy of bombing runs by examining photos taken through Norden bombsights.





National Museum of the U.S. Air Force Photo



Barclay was always proud of his aerial photography skills and camera.

“I don’t remember much after that, except the shock of hitting the water and being so cold. Cold and scared—I had never learned to swim.”

I left the program eventually, but not for Stanford as things turned out. In one of those life-changing decisions, with an airplane sitting on the ramp to take me to Palo Alto, I resigned my new commission and assignment. I wanted to stay where I was, happy with my friends and duties and the base itself. Deep down, I decided I didn’t care about promotions, staying in the Air Force the rest of my life.

The Air Force, surprisingly enough, didn’t act furiously, didn’t bust me back to private. Eventually, I was given orders for a new assignment, a replacement depot in Salt Lake City. I soon found myself

among a bunch of pilots and bombardiers, all officers. Something was up.

That “something” began to come clear in a dramatic way at dawn three weeks later, when I gazed out a train window as we rounded a curve in Great Bend, Kansas. Dramatic in the early morning light, huge airplane rudders soared against the sky in rows. The tail structures belonged to B-29s, the Air Force’s new “Superfortress,” the bomber replacing the B-17s.

The B-29 was capable of reaching altitudes around 40,000 feet (far above the B-17’s bomb-load limits, where it could be downed by ground artillery fire) and carrying huge payloads thousands of miles. Seen in full on the ramp, while my mind compared the Superfortress to the B-17s I had flown in so often during my training, the B-29 left me awe-stricken. Here was an airplane of such sleek design and size that surely it would rule the skies. This was the airplane that would eventually write the final chapter in the aviation war against Japan.

Top Secret

My “Superfortress” duties in aerial photography at Great Bend got off to a riveting start when I was issued a small blue card that stated that Corporal Frank Barclay “has duties which require his presence in The Restricted Area.”

(Today, that small blue card counts as one of my most prized possessions. There are so few survivors of that time that I was included in invitations to participate in ceremonies commemorating the B-29 at the Smithsonian Air-Space Museum in Washington, D.C. The “blue card” even plays a bit part in the movie *Above and Beyond* chronicling the Enola Gay and its captain, Paul Tibbets.)

Now my training as an aerial photographer put me on duty as the only enlisted man in a five-man office where we scored the bomb drops of bombardiers training with B-29s. Sitting at a light table, I could study the film made through the Norden bombsight and score the accuracy within inches. The 100-pound smoke bombs created a dot in the film, even at altitudes above 30,000 feet. I even recall one drop at 46,000 feet. The target was a 100-foot circle on the ground, and in the center a stack of old boards was placed in a pyramid shape. Hitting that stack was called a “shack,” an expression that survived into modern Air Force eras.

Camera bombing, simulating actual bomb drops, was also part of the training. A favorite target, 250 miles away, was Union Depot in Kansas City, where rail lines converged in visual splendor through the Norden bombsight.

It was on some of these missions that I got in actual flying time (earning my



The crewmen of the Enola Gay pose in front of the aircraft. Colonel Paul Tibbets (center) piloted the plane and helped drop the atomic bomb on Hiroshima, Japan.



The remarkable carrier pigeons at their coops.

"Flight Pay") working with the bombardiers in a different B-29 every flight. These crews, and the airplanes themselves in many cases, went on to the Pacific to fly in raids on Japan.

Colonel Paul Tibbets, destined to fly the B-29 he named "Enola Gay" (after his mother) in the Hiroshima atomic bomb attack, had an enormous presence at Great Bend. He was seldom seen, but operating a project with the code name "Silverplate," he carried more clout than perhaps any other Air Force officer. No one knew exactly what Tibbets was up to—all kinds of rumors were swirling about—but we all knew it was big. Real big.

Tibbets had flown some of the early and most important B-17 missions bombing Germany and was known to be a skilled and demanding commander. What we did not know was that he was working directly with General Leslie Groves, head of the secretive Manhattan Project, to develop a plan for delivery of the atomic bomb. Colonel Tibbets had been hand-picked to form a special B-29 group to bomb the island of Japan.

I met him once, during one of his visits to Great Bend. I was summoned to Tibbets' office, and I went in, kind of trembling, thinking, "What have I done now?" The meeting, however, was cordial and pleasant. Accompanying Tibbets was a gentleman whose daughter I had been dating quite seriously the year before. He had me summoned just to say hello. I learned later that he was a base air inspector. I can't remember anything special about Tibbets, except that he seemed just like all the other pilots I knew—confident, friendly and very sharp.

Air Emergency

Working with all the B-29 training bases, and bringing in some of his crew members from the B-17 German raids, Tibbets eventually assembled what was called the 509th Composite Group. It went into training at Wendover Field, Utah, and eventually shipped out to our B-29 base at Tinian. They were flying modified B-29 aircraft with special bomb bays. Rumors were rampant. But they were only that, rumors.

I didn't make it to Tinian with Tibbets and the 509th. I like to think that I would have been chosen to ship out with the group, except for one flight. A flight to Cuba.

We had some B-29s stationed at Batista Field, Cuba, training with simulated radar bombing from high altitudes. Our groups at Great Bend also began training there. We flew our B-29s from Great Bend to Cuba during the

night, radar-bombed the target, then flew home. Nonstop. Almost exactly the same distance as flights from Tinian to Japan.

It was on one such mission, just at pre-dawn on our return trip, that we had a fire in our Number Three engine. (That's the first one on the right, next to the fuselage; the B-29 was plagued with engine problems for years.) I was sitting in my usual spot on a pile of parachutes, and by the time the captain ordered us to bail out, I was ready with my chute and Mae West jacket. I went out the bomb bay.

I don't remember much after that, except the shock of hitting the water and being so cold. Cold and scared—I had never learned to swim. The Mae West jacket did its job of keeping me afloat, and, miraculously, a patrol boat picked me up right away. We were somewhere near Biloxi, Mississippi, I later learned, and the pilot had evidently called in our position. He also kept the plane flying and only one other crewman had bailed out.

I spent some time in the hospital, but when I returned to duty, I faced another setback. I suddenly lost my ability to speak. I didn't stutter. My diaphragm simply refused to work. I spent 52 days in the hospital before finally being released with what the doctors described as a "central nervous system condition." They never pinpointed my malady as being connected to the parachute jump.

I was given a medical discharge. WWII was over for me. I went into journalism school at the University of Missouri. Six days later, the 509th dropped the first of two atomic bombs.

I'm thankful that I am still here at 93 to describe those days to you. The Air Corps lost over 200,000 in WWII. Only the infantry lost more. Much of those days has faded from my memory now. But every time I look at those wings given to me last year, to replace the ones I had lost, I remember what it was like to be young and full of purpose, flying high with the best aviators on earth in the Army Air Corps.

Editor's Note: Frank Barclay is the retired owner of his own advertising agency. His career in advertising and journalism includes years as a lead newspaper photographer. He now lives in Missouri. **SW**

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FERFRANS designed the 5.56mm SOAR PDW to provide the ultimate power and reliability in close quarters. In addition to CQB missions, the PDW has great appeal for protection details.

“Conceived for both close-quarters combat and executive protection, the SOAR PDW was designed to provide high-volume full-automatic fire.”





5.56MM

BY GARY PAUL JOHNSTON

With some two hundred suppliers of AR-type rifles in America and more coming all the time, the race to introduce something new and better is fierce. Weeding through the maze of pinstriping and fads can be confusing, especially for those new to the industry. Occasionally, however, something out of the box comes along to enhance the operation of the weapon—something totally utilitarian. Rare? You bet!

Over a decade ago, Richard Swan, the president of Atlantic Research Marketing Systems (ARMS), introduced me to Ferdinand Sy, the president of FERFRANS, Inc., of California, and asked him to show me his new M16 rate reducer. After I signed a non-disclosure agreement, Ferdinand showed me an M16 bolt group. It was an “Oh my God” moment.

Sy had designed and built a simple and foolproof rate-reduction system for the AR platform, and it consisted of only one part. Although the device was not yet patented, he gave me a modified bolt group to evaluate. When I put it in a Colt M4A1 carbine and fired it using a timer, I was amazed—the rifle was firing at 562 rounds per minute. When I duplicated the test using the standard bolt group,

the rate of fire was back up to about 750-plus rounds per minute.

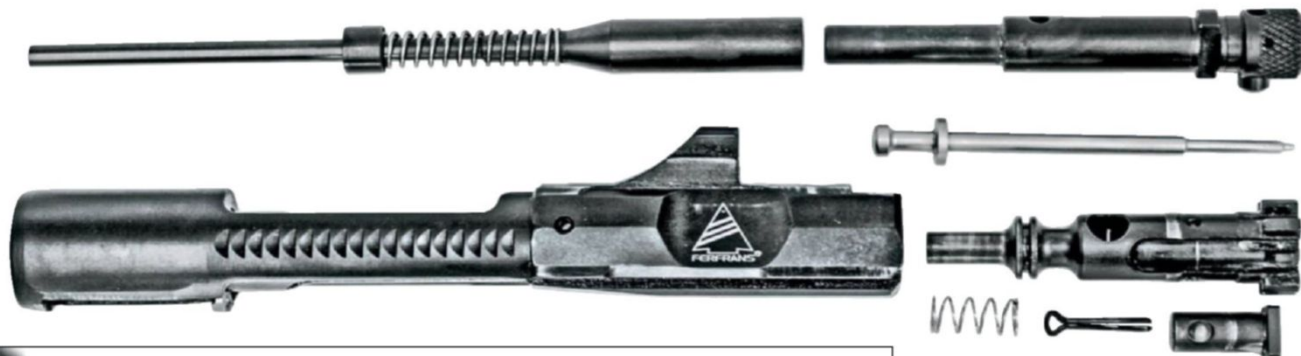
The sliding piece housed in the rear of the AR-15 bolt carrier had a couple inches of travel. Resembling a tuning fork, the reducer had extensions, or arms, on either side between which the hammer passed. The rear of the reducer joined the “forks,” and at the bottom of it protruded a part that tripped the rifle’s auto sear (the area of the bolt carrier that normally trips the auto sear was machined off). Here’s how it works.

When the rifle is fired and the bolt group bottoms out against the buffer, the rate reducer travels to the rear of the bolt carrier by kinetic energy, where it remains as the bolt group returns forward. Then, when the bolt group goes into final battery, the reducer, again under kinetic energy, moves forward to trip the sear. It is this delay that results in the reduction of rounds per minute, but that’s not all.

When the ends of the “fork” stop against the rear of the bolt carrier next to the firing pin, their energy provides an extra margin of forward force to the bolt group just before the hammer falls. This prevents bolt carrier bounce and a misfire. The rate reducer also makes the rifle work more positively on semi-automatic.

The FERFRANS rate reducer is now patented throughout the free world, but it was first granted a patent in the Philippines. In fact, the Philippines’ special operations forces

FERFRANS SOAR PDW 5.56MM



ABOVE: The SOAR PDW's short-stroke gas piston operating system designed by FERFRANS is both simple and foolproof, preventing debris from entering the bolt group and causing a malfunction.



ABOVE: The three-port muzzle brake vents gases to both sides, but surrounding the brake is a cup-like Concussion-Reduction Device (shown removed) that sends gases and sound waves forward, away from the shooter and fellow operators that may be working near the SOAR PDW in CQB.

have been using it for some time in the rifle system FERFRANS calls the Special Operations Assault Rifle, or SOAR. Over the past decade, the SOAR has evolved into a family of 5.56mm NATO carbines based on the M16.

The SOAR weapons group includes a sniper rifle, a battle rifle, a suppressed rifle, a carbine, an SBR and a light machine gun, all offered in black or Flat Dark Earth, and some with a 40mm grenade launcher, which is worthy of an article by itself. Now FERFRANS has unveiled its brand-new SOAR personal-defense weapon (PDW), which I recently got the chance to test. The company is also now offering semi-automatic-only versions of its rifles to buyers in the United States.

Gun Details

Conceived for both close-quarters combat and executive protection, the SOAR PDW was designed to provide high-volume full-automatic fire. The main components making this possible are the rate reducer, a heavy barrel and a short-stroke piston system.

A short-stroke piston is especially important in the 7-inch-barreled SOAR PDW because such a barrel magnifies potential issues with a direct-impingent system, as used in a conventional M16 rifle. It requires the gas port to be near the top of the pressure curve, and direct gas

PERFORMANCE:

FERFRANS SOAR 5.56mm

LOAD	VELOCITY	ACCURACY
Black Hills 55 FMJ	2,577	2.61
Hornady 55 V-MAX	2,558	2.49
Remington 55 FMJ	2,569	3.23

Bullet weight measured in grains, velocity in fps by chronograph, and accuracy in inches for best five-shot groups at 100 yards.

Q Concepts Photo



Taran Tactical PMAG Extensions

By Jorge Amselle

In the mockumentary film *Spinal Tap*, one of the members of the eponymously named heavy metal band brags that their speakers “go to 11.” This gives the band an advantage over their competitors who only have speakers marked to the standard 10, in that when they need a little extra *oomph*, they have it. We could all use a little extra *oomph*, and for gun owners the extra we want usually revolves around magazine capacity.

MAJOR FIREPOWER: If you have a 5.56mm or 7.62mm NATO AR and like your Magpul PMAGs, now you can push them well past 11 with the

Major Firepower magazine extensions from Taran Tactical Innovations. The one-piece extensions are CNC machined from solid aluminum billet and hardcoat anodized in a variety of colors. They can be installed or removed very quickly and easily with a push-pin retention system. All you do is replace the polymer baseplate with the new extensions and you automatically get an extra five rounds in a standard 30-round 5.56mm PMAG. If you have a 20-round 7.62mm PMAG, the extension will add an extra six rounds. Both models can also be installed on extended-capacity

Magpul PMAGs as well.

The extensions only make your magazines marginally longer and still allow for prone shooting as normal. The slight extra weight also helps the magazines drop free faster for speedy magazine changes. These are designed primarily for the extra edge in competition, but there is no reason they can't give you the extra edge in a tactical application. For more information, visit tarantacticalinnovations.com.



The author's sample PDW came with the Magpul MOE+ pistol grip, which features a rubbery overmolded surface and a storage compartment for spare parts.

continues through the port until the bullet leaves the barrel. With a short-stroke piston, only a small amount of gas is used to move the piston a short distance, so there's less port erosion and heat and debris do not enter the bolt group.

An efficient muzzle brake is an important part of any fully automatic 5.56mm weapon, especially one with a short barrel. Knowing that the gases vented to the sides would be a problem, FERFRANS developed a very effective muzzle brake for the SOAR PDW. Consisting of a conventional three-port brake, the FERFRANS unit vents the gas to both sides, but attached to the barrel behind the brake is a cup-like Concussion-Reduction Device (CRD). Once the gas is exhausted out the sides, it is diverted forward along with much of the sound waves. The brake

the sides are drilled and tapped for adding more rails. My test model came with a short accessory rail on the right front side as well as removable rail covers on both sides. The short rail on the bottom allows users to add a vertical foregrip. Samson flip-up sights come standard, along with a B5 Systems Bravo buttstock.

The SOAR PDW has a special disassembly process. The PDW's short-stroke piston has the usual on, off and disassembly positions, but the CRD deflector must first be removed in order to remove the piston. To remove the CRD, rotate the rear section a quarter-turn counter clockwise and remove the cup forward, off the muzzle bake (the positions are marked “lock” and “unlock”).

The bolt group is disassembled in the usual manner, except that the rate

is also threaded at the rear, and Sy reports that a suppressor is in the works to attenuate most of the sound from the PDW.

All SOAR upper and lower receiver components are made by Stag Arms, and all SOAR rifles bear the Stag name in addition to FERFRANS and SOAR. The free-floating handguard is a Samson Evolution model made for Stag and modified by FERFRANS. On the PDW, the handguard features rails at the 6 and 12 o'clock positions, while

reducer remains in the carrier. I found it easier to first remove the firing pin retainer, allow the firing pin to move all the way to the rear, and then rotate and remove the cam pin, the bolt and finally the firing pin. The bolt has no gas rings and on its rear extension is a coil spring to keep it in its forward position.

Range Time

For testing, I equipped the SOAR PDW with a Grip Pod sporting a MantaRail Vertical Grip Sleeve and a SureFire G2 light. For optics, I chose the Aimpoint CompM4 red dot. I ran the SOAR PDW through a variety of drills using a 90-round MWG magazine as well as 30-round Magpul PMAGs and others. The SOAR PDW ran perfectly with no malfunctions, and its muzzle brake and rate reducer proved very effective in eliminating recoil and allowing the gun to remain on target.

I tested the SOAR PDW's accuracy at 100 yards off of sandbags using the Aimpoint CompM4 red-dot sight to simulate issued optics. The PDW produced five-shot groups in the 2- to 4-inch range, which is quite good for the breed. As mentioned, no malfunctions occurred, and I measured the rate of fire with a hand timer at just over 700 rpm, with minimal muzzle blast noted.

The SOAR PDW is available to LE agencies in select-fire, or semi-automatic-only as an SBR where allowed. FERFRANS is offering all of its SOAR rifles in semi-automatic only. For information, visit ferfrans.net or call 626-893-8155. **SW**

(continued from page 56)

Croatia MoD Photo



LEFT: Croatian soldiers practice tactical maneuvering with their 5.56mm VHS-D bullpup rifles, which have been used during combat deployments in Afghanistan and on peacekeeping missions in the Golan Heights and Sierra Leone.

RIGHT: A Croatian operator fires a VHS-K rifle with the aid of an Aimpoint red-dot sight and 3X magnifier. The VHS-K variant features a 16.4-inch barrel and a total length of just 26.5 inches, making it an ideal choice for military or police operations in urban areas.

magazine constructed of extremely durable polymer to feed the VHS rifle. The polymer material is translucent, allowing the shooter to monitor ammunition levels visually. To facilitate rapid reloading in combat, the magazines can be coupled together using a pair of mounting lugs molded into the sides of the magazines. The magazine is inserted or removed from the rifle by a simple straight up and down motion. The magazine release, located at the rear of the magazine well, is easily manipulated by the shooter's weak-hand

thumb. An alternate magazine well assembly that accepts M16-type magazines is also available from HS Produkt. In another step to make it ambidextrous, shooters can configure the VHS-D2 and VHS-K2 to eject spent cartridge casings to either the left or right sides.

By all accounts, the VHS rifle is well liked by Croatian soldiers and civilian shooters in European nations that allow ownership of select-fire rifles. Operations conducted in the Middle East and Africa have proven that the design works in

real-world combat scenarios. Due to the well-thought-out design features of the second-generation VHS-D2 and VHS-K2, they will probably gain much attention from military and police customers around the world. A semi-automatic-only version, should it ever be offered, would undoubtedly be of great interest to the civilian shooting market. Current and future generations of the VHS rifle will probably enjoy a long production run, no matter what. For more information, visit hs-produkt.hr/en/. **SW**

Croatia's Combat Pistols

By Christian Shepherd

Croatian firearms manufacturer HS Produkt has earned a reputation for producing cutting-edge semi-automatic pistols since its founding in 1991. In the beginning, the company produced the PHP and HS95 pistols for the newly formed government of Croatia for use by its military and police forces. Soon, the definitive HS2000 pistol followed, and the design became a phenomenal success. Among its features were a polymer

frame, excellent ergonomics and outstanding safety features. Three separate safeties consisting of a trigger safety, a grip safety and a firing pin block protect against unintentional discharges. Further safety enhancements include a striker status indicator and a loaded-chamber indicator, giving shooters both tactile and visual feedback about the status of the pistol.

Today, the HS family of pistols, based on the HS2000, has evolved into over 50 different models. In 2001, HS Produkt and Springfield Armory entered into a long-term agreement to market the HS family of pistols in North America. In the United States, these pistols, known as the Springfield XD series, have become a very popular choice with both law enforcement and civilian



shooters. As a result, 95 percent of HS Produkt-manufactured pistols are sold by Springfield Armory in the U.S. Springfield XD variants are available in full-size, compact or subcompact models. Available calibers include 9mm, .357 SIG, .40 S&W and .45 ACP. Numerous options in magazine capacity, finish and sights are also available. For more information on HS Produkt, visit hs-produkt.hr/en/. For more information on Springfield Armory, visit springfield-armory.com or call 800-680-6866.





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WORLD WAR II DOGFIGHTERS

American aces fought bravely with
these **COMBAT-READY** Allied aircraft!

By Jack Satterfield

World War II changed everything. It encompassed less than a decade, lasting from 1939 to 1945, but nearly every aspect of human civilization was revolutionized, abandoning old traditions and adopting new ways of life. The war created new technologies and expanded others. Probably no technological arena was altered more radically than aviation. Before the war, aviation had been a novelty on the periphery of society and military operations. After 1945, aviation was essential, at the center of the world's new economy and the foundation of future conflict.

Aviation's coming of age in just a few years was due to extraordinary technical breakthroughs in design, manufacturing, distribution and management of airframes and power plants. Aviation engines, mostly in-line for the Army Air Force (AAF) and radial for the Navy and Marines to save

precious carrier deck space, are still used today. Combatant nations, most especially the United States, produced radically new, sophisticated aircraft that left many of their predecessors in the dust and set the stage for even more remarkable innovations in the Jet Age that started as the war ended. Other countries frequently achieved comparable success by copying U.S. designs and processes.

Furthermore, these new aircraft became realities almost instantly and at remarkably low cost. For example, just 117 days elapsed from the P-51 Mustang's contract date to the prototype's first flight. At peak production in 1944, the Mustang's unit flyaway cost was about \$50,000. Seventy years of inflation would raise that price to less than \$670,000 today, a ridiculously low cost when compared to the F-35 Lightning II Joint Strike Fighter, with a current price tag of about \$108 million for the Air Force's

F-35A designed for conventional runways to \$134 million for the Marine Corps' F-35B VTOL version and \$125 million for the Navy's F-35C carrier model. The U.S. built about 15,800 Mustangs for an estimated \$10.59 billion in current dollars. The 2010 procurement plan, reduced several times since, called for 2,443 F-35s for an estimated \$323 billion. Yes, the F-35 is more capable than the P-51, but should that capability improvement cost more than 197 times as much?

The simple truth is that WWII required absolute and unyielding commitments to excellence from entrepreneurs, engineers and technicians because the stakes were so high. In recent years, new U.S. military aircraft have performed well, but in conflicts with reduced challenges to their dominance. One reason Americans venerate WWII warbirds decades after they served is that they faced challenges, constant and dire, and not only endured, but prevailed, compelling evidence of the effectiveness of their producers and operators.

A survey of American fighter aircraft (the Army's P-model designation stood for "pursuit") flown by the U.S. Army Air Corps (USAAC) and Army Air Forces (USAAF) and the U.S. Navy and Marine Corps in World War II demonstrates several of these characteristics in spades.

USAAC/USAAF

SEVERSKY P-35

The P-35, in service in 1937, was the USAAC's first all-metal, single-seat pursuit aircraft, evidence of how far behind the U.S. was in aircraft development in early pre-war years. Fewer than 200 P-35s

served the U.S. and nearly all were lost in the Philippines in the war's first days in late 1941. The

P-35 carried just two machine guns and a small bomb load and cruised at just 260 mph. Designed by Russian émigré Alexander de Seversky and his namesake company, the P-35 led to the renamed and reorganized Republic Aviation Corporation's P-47 Thunderbolt, one of the war's best fighters.



USAF Museum Photo



BELL P-39 AIRCOBRA

Introduced in 1941, the P-39 featured several innovations, including tricycle landing gear when most aircraft were tail draggers and a mid-fuselage engine mount that permitted installation of a 37mm cannon that fired through the propeller hub, making it a formidable ground attack platform. Its maximum speed was 375 mph, but the Airacobra had no supercharger, limiting its altitude. The P-39 performed well in the Pacific through 1942 and briefly in the Mediterranean theater in 1944 with the Tuskegee Airmen of the 99th Fighter Squadron. The P-39 also served extensively in the Soviet Air Force.

“The simple truth is that WWII required absolute and unyielding commitments to excellence from entrepreneurs, engineers and technicians because the stakes were so high.”

LOCKHEED P-38 LIGHTNING

The fork-tailed, twin-engine Lightning is legendary. Designed by Lockheed genius Kelly Johnson, it was the only American fighter in production from Pearl Harbor to VJ Day (more than 10,000 built) and it flew in foreign service until 1965. It was complex and more expensive than other U.S. fighters, but exceptionally effective, with a top speed of 414 mph and nose-mounted .50-caliber machine guns and a 20mm cannon as well as hard points for rockets and bombs. The

best Pacific USAAF aces flew Lightnings, and it also saw long service in the European theater. For more information, call 302-478-1583 or visit lockheedmartin.com.



CURTISS P-40 WARHAWK

Used by most Allied forces throughout the war, the Warhawk was the third most-produced fighter behind the P-51 and P-47, with about 13,700 built. It gained fame before the U.S. entered the war with the American Volunteer Group Flying Tigers, festooned with shark mouths painted on the cowlings, in China. With no supercharger for high-altitude combat, it was little used in Europe but saw extensive service in North Africa, Italy, the Middle East and the Pacific, performing well in ground attack roles. Its 360-mph maximum speed was adequate, but its rugged airframe could absorb extensive punishment and keep flying. For more information, visit curtisswright.com or call 973-541-3700.



Aviation's coming of age in just a few years was due to extraordinary technical breakthroughs in design, manufacturing, distribution and management of airframes and power plants.”



REPUBLIC P-47 THUNDERBOLT

Nicknamed “the jug” because of its bulky fuselage, the P-47 was big and heavy, well suited for air combat, ground attack and bombing missions because it could carry 2,500 pounds—half the load of a B-17. With eight .50-caliber machine guns and a Pratt & Whitney R-2800 Double Wasp radial engine that enabled the P-47 Thunderbolt to fly at a maximum airspeed of nearly 450 mph, it was very powerful and formidable, and its combined record of destruction in the air and on the ground led many experts to consider it the best Allied fighter of the war. Republic built approximately 15,500 Thunderbolts.

NORTH AMERICAN P-51 MUSTANG

The P-51 is the archetypal WWII fighter. Introduced in 1942, it retired from foreign military service in 1984. Its rapid development and low cost led to extensive production, more than 15,700, and it served with distinction in all war theaters. A 1,490-hp U.S. version of the Rolls-Royce Merlin 60 with a two-stage supercharger, in the P-51D, the definitive model, ensured the Mustang's superiority. Its advanced laminar-flow airfoil wing—reducing high-speed drag and increasing agility—combined with its 437-mph maximum speed, made the P-51D the dominant dogfighter of the war and the preferred escort for Allied bombers. For more information, visit boeing.com or call 312-544-2000.



NORTHROP P-61 BLACK WIDOW

The P-61, a purpose-built night fighter, entered service in 1944. Configured with twin tail booms and two engines like the P-38, but much larger and nearly twice as heavy, the Black Widow carried two or three air crewmen, including a radar operator who directed the pilot toward acquired targets. The P-61 suffered from developmental problems, and it had limited success in Europe because late-war German aircraft could outrun its moderate 366-mph maximum speed. It performed better in the Pacific, scoring the war's final shoot-down one day before Japan surrendered. It remained in USAF service until 1954. For more information, visit northropgrumman.com or call 703-280-2900.



USN/USMC



BREWSTER F2A BUFFALO

The stubby F2A actually beat the Grumman F4F Wildcat in a competition to supplant the F3F, the Navy's biplane carrier fighter, but added equipment weight without a power increase impaired its performance. Several nations flew the Buffalo, but its slow cruise speed, 161 mph, lack of self-sealing fuel tanks and just two machine guns made it far inferior to most adversaries, although it performed well in the Finnish Air Force in the Soviet invasion. The U.S. Navy and Marine Corps flew F2As through Midway, when the Buffalos were quickly replaced by resurgent Grumman F4Fs. The Brewster Aeronautical Corporation dissolved in 1946.

GRUMMAN F4F WILDCAT

Tough little Wildcats came to the Navy and Marine Corps' rescue in 1942. At first F4F wings did not fold, and landing gear were cranked up and down by hand. The rugged plane, despite its 313-mph speed, was slower than the Japanese Zero. But, coupled with superior tactics involving wingman pairs developed by Navy ace and future admiral John S. "Jimmy"

Thach, it held its own in the Pacific in carrier engagements, on Guadalcanal and in Operation Torch in North Africa. Grumman and General Motors built about 7,800 Wildcats that enjoyed a nearly seven-to-one kill/loss ratio. For more information, visit northropgrumman.com or call 703-280-2900.



Grumman and General Motors built about 7,800 Wildcats that enjoyed a nearly seven-to-one kill/loss ratio.



GRUMMAN F6F HELLCAT

Grumman focused on F6F production after late 1942, and the Hellcat quickly took over as the Navy's primary carrier fighter. It was bigger, burlier and far more lethal than its predecessor. It flew more than four times more sorties than Wildcats and shot down more than 5,000 enemy aircraft while losing only 270 in aerial combat, an outstanding 19-to-one ratio that produced 305 American aces. Powered by R-2800 Double Wasp two-row radial engines, Hellcats dominated Pacific air combat from 1943 to VJ Day. Grumman built nearly 12,300 F6Fs, but they retired from service soon after WWII. For more information, visit northropgrumman.com or call 703-280-2900.



VOUGHT F4U CORSAIR

The inverted gull-winged Corsair was the most powerful Navy WWII aircraft, with the biggest two-row radial engine available. Its wing design was needed because landing gear weren't long enough to keep its enormous propeller from hitting the ground when it landed. Its long nose made pilot visibility poor during carrier landing, so the Navy gave the Corsair to the Marines, and only 15 percent of its 64,000 sorties were from carriers. F4Us claimed 2,140 kills against 189 dogfight losses, an 11-to-one ratio. F4Us also excelled at ground attacks, flying 70 percent of the war's fighter-bomber missions. The Corsair's 414-mph top speed and excellent dive performance led the Japanese to nickname the F4U "Whistling Death." It also served in Korea and retired from foreign service in 1979. For more information, visit triumphgroup.com or call 610-251-1000.



“...with its 421-mph maximum airspeed, the Bearcat could perform better than many early jet aircraft.”

GRUMMAN F8F BEARCAT

The Bearcat entered service before war's end but saw no combat, although it fought with the French in Indochina. It was smaller than the Hellcat, making it more maneuverable with a better climb rate than the Corsair, and with its 421-mph maximum airspeed, the Bearcat could perform better than many early jet aircraft. Known as one of the best piston-engine fighters, it was so responsive in maneuvers that it was the first mount of the Navy's Blue Angels flight demonstration squadron in 1946, and it equipped 24 Navy fighter squadrons until improved jets replaced the F8F in the early 1950s. For more information, visit northropgrumman.com or call 703-280-2900.





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| <input type="checkbox"/> Save articles of interest | <input type="checkbox"/> Pass it along to others (Skip to Q13) |
| <input type="checkbox"/> Place it in a public area | |

12. How many times in the past year have you referred to back issues or articles saved of **SPECIAL WEAPONS FOR MILITARY & POLICE**?

- | | |
|--|---|
| <input type="checkbox"/> Less than 2 times | <input type="checkbox"/> 6 – 10 times |
| <input type="checkbox"/> 2 – 5 times | <input type="checkbox"/> 11 times or more |

13. What other magazines have you read at least three out of the last four issues?

- | | |
|--|---|
| <input type="checkbox"/> <i>Gun World</i> | <input type="checkbox"/> <i>Soldier of Fortune</i> |
| <input type="checkbox"/> <i>American Rifleman</i> | <input type="checkbox"/> <i>Guns & Ammo</i> |
| <input type="checkbox"/> <i>SWAT</i> | <input type="checkbox"/> <i>Shooting Times</i> |
| <input type="checkbox"/> <i>GUNS</i> | <input type="checkbox"/> <i>American Handgunner</i> |
| <input type="checkbox"/> <i>RECOIL</i> | <input type="checkbox"/> <i>USA Today or other national newspaper</i> |
| <input type="checkbox"/> <i>Guns & Weapons For Law Enforcement</i> | <input type="checkbox"/> <i>Handguns</i> |

14. How do you rate yourself as a shooter?

- ☐ Experienced ☐ Active ☐ Novice

15. How many handguns do you own?

- | | |
|--------------------------------|-------------------------------------|
| <input type="checkbox"/> None | <input type="checkbox"/> 5 – 9 |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 10 – 19 |
| <input type="checkbox"/> 2 | <input type="checkbox"/> 20 – 49 |
| <input type="checkbox"/> 3 – 4 | <input type="checkbox"/> 50 or more |

16. Have you had any custom work performed on any handguns you currently own?

- ☐ Yes ☐ No

17. Do you plan on customizing any of your handguns?

- ☐ Yes ☐ No

18. Which manufacturer and caliber of handguns do you currently own or plan to purchase.

Manufacturer	Caliber	Currently own	Plan to buy	Autopistol	Revolver
_____	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Which of the following unexpired gun permits do you possess?

☐ Carry ☐ Hunting ☐ Other ☐ None

20. How many current concealed carry permits do you have?

☐ 1 ☐ 4
☐ 2 ☐ 5 or more
☐ 3 ☐ None, no not carry concealed

21. What purposes do you use your firearm? Check all that apply.

☐ Home security ☐ Competition
☐ Range ☐ On the job
☐ Personal security ☐ Other
☐ Hunting

22. Do you belong to, or intend to join any of the following clubs/associations?

	Current member	Intend to join	Former member
NSSF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. How often do you participate in the following shooting sports/hobbies per year:

	1-4 times	5-9 times	10-19 times	20+ times	Never
Big Game hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fowl hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Target/Trap/Skeet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New Shooter/Hunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competitive Shooter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plinker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cowboy Action Participant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. With whom do you generally shoot with?

☐ Children (under 18 years old) ☐ Coworkers
☐ Children (over 18 years old) ☐ Fellow Club Members
☐ Other Family Members ☐ Clients (as a guide/outfitter)
☐ Friends ☐ Nobody (participate alone)

25. Do you currently own, or plan to purchase (within the next 12 months) any of the following?

	Currently own	Plan to buy
Knife (non-kitchen cutlery)	<input type="checkbox"/>	<input type="checkbox"/>
Conceal carry holster	<input type="checkbox"/>	<input type="checkbox"/>
Leather holster	<input type="checkbox"/>	<input type="checkbox"/>
Shotgun	<input type="checkbox"/>	<input type="checkbox"/>
Polymer holster	<input type="checkbox"/>	<input type="checkbox"/>
Nylon holster	<input type="checkbox"/>	<input type="checkbox"/>
Gun safe	<input type="checkbox"/>	<input type="checkbox"/>
Gun safety device	<input type="checkbox"/>	<input type="checkbox"/>
Dot Sight	<input type="checkbox"/>	<input type="checkbox"/>
Personal Protection	<input type="checkbox"/>	<input type="checkbox"/>
Laser equipment	<input type="checkbox"/>	<input type="checkbox"/>
Non-lethal equipment	<input type="checkbox"/>	<input type="checkbox"/>
Custom made holster	<input type="checkbox"/>	<input type="checkbox"/>
Reloading equipment	<input type="checkbox"/>	<input type="checkbox"/>
Custom made knife	<input type="checkbox"/>	<input type="checkbox"/>
Chronograph	<input type="checkbox"/>	<input type="checkbox"/>
Night vision equipment	<input type="checkbox"/>	<input type="checkbox"/>
Flashlight	<input type="checkbox"/>	<input type="checkbox"/>

26. How many followers/friends do you have on:

	1-50	51-100	101-249	250+	None
Facebook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Twitter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instagram	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LinkedIn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27. How do you commonly access the Internet?

☐ iPhone ☐ Tablet
☐ Android ☐ Desktop computer
☐ Blackberry ☐ Laptop computer
☐ iPad ☐ Do not access the internet (Skip to Q31)

28. Do you research potential shooting product purchases on the Internet?

☐ Yes ☐ No

29. Have you ever purchased shooting equipment products over the Internet?

☐ Yes ☐ No

30. Do you read/follow online blogs that are about shooting/guns?

☐ Yes ☐ No

31. What is your gender?

☐ Male ☐ Female

32. Please select your age.

☐ Under 18 ☐ 35-39 ☐ 60-64
☐ 18-21 ☐ 40-44 ☐ 65-or above
☐ 22-24 ☐ 45-49 ☐ Prefer not to answer
☐ 25-29 ☐ 50-54
☐ 30-34 ☐ 55-59

33. What is the highest level of education you have attained to date?

☐ High school or less
☐ Attended college
☐ Graduated from college
☐ Postgraduate study without degree
☐ Masters degree
☐ Doctoral degree
☐ Other professional degree (M.D., J.D., etc.)
☐ Prefer not to answer

34. Which of the following best describes your current employment situation:

☐ Employed Full-Time
☐ Employed Part-Time
☐ Self-employed
☐ Not employed, but looking for work
☐ Not employed and not looking for work
☐ Homemaker
☐ Retired
☐ Student
☐ Prefer Not to Answer

35. Are you now, or have you been employed in any of the following lines of work?

☐ Military
☐ Law enforcement (SWAT, Patrol or Security)
☐ Security
☐ Private guard
☐ Executive Protection
☐ Private investigator
☐ Coast Guard/National Guard
☐ None of the above

36. What was your total household income before taxes last year?

☐ Under \$20,000
☐ \$20,000 – \$39,999
☐ \$40,000 – \$59,999
☐ \$60,000 – \$79,999
☐ \$80,000 – \$99,999
☐ \$100,000 or more

If you have additional comments to make, please put them on a separate sheet of paper.

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THANK YOU FOR YOUR PARTICIPATION!

92G BRIGADIER TACTICAL 9MM

(continued from page 53)

SA-only pistols. Follow-up shots in SA were solid, although it took me a while to get consistently fast split times.

Since entries using a pistol alone are rare, the next step was to practice transitions from a long gun. It also provided the opportunity to use the decocker in a more realistic environment. I strapped on my Seekins SBR in 300 BLK and spent more time in the shoothouse. The SBR is equipped with a titanium Liberty Suppressors Mystic X, making it very quiet and well balanced, as well as the Trijicon SRS, one of my favorite sights.

"The take-up was smooth and predictable, making it easy to get fast, accurate, first-round hits."

Transitions on the move were pretty smooth. The Beretta comes up quickly and is very controllable. My accuracy on the move was excellent, with double-taps and hammers staying inside 4 inches on all targets. Slowing down a little, it was possible to be extremely precise when necessary. Pistols with decockers should not be holstered without decocking first, and the 92G's decocker was easy to access. I would grip the pistol with both hands and use my off hand to decock the pistol prior to reholstering. It was also easy to access the decocker with just my strong hand when performing one-handed transitions. Shooting left-handed, the roles were reversed but equally effective. This is by far my preferred setup with these types of pistols.

Final Notes

As expected, the Brigadier Tactical functioned flawlessly using several types of ammo ranging from low-velocity match rounds to +P rounds. The felt recoil is very light due to the heavier Brigadier slide and the general light-recoiling characteristics of the 92 platform, and Wilson Combat's G10 grips enhanced my control.

Wilson Combat did an excellent job of setting this pistol up. Out of the box, it is perfectly suited to duty or even action pistol competition use. Every upgrade enhances reliability, accuracy and comfort without the need for further enhancements. After a solid couple of days with this pistol, I might just have to keep it—something I haven't said about a DA/SA pistol in a long time! For more information, visit wilsoncombat.com or call 800-955-4856. **SW**

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(continued from page 11)

screws, as these can sometimes loosen under constant impact.

The rear of the bolt carrier is wider than the body so that it fits more snugly inside the receiver extension or buffer tube. This reduces carrier tilt, a characteristic of piston-driven ARs that is caused by the piston rod pushing the bolt carrier boss, which is not on the centerline of the bolt carrier. This can cause the bolt carrier to tilt downward at the rear, creating excessive wear, which the flared back end on the Sig prevents.

Sig Sauer's piston system consists of a piston that rides inside a gas plug or valve that fits inside the gas block, which is located about 8 inches forward of the chamber. Sig Sauer experimented with the gas port's placement and found that locating the port where it is helps enhance the rifle's accuracy.

The gas valve can be rotated to one of four positions. The standard position is meant for operation under normal conditions. Rotating the valve one click left opens the gas port a bit for use when

"The factory test target is... shipped with the gun to show the rifle's accuracy potential. The group for this gun measured 0.39 inches for five rounds."

the gun is dirty, performance is sluggish and the operator cannot stop to clean the gun. Rotating it one click to the right reduces gas flow for use with a suppressor. Turning it two clicks to the right cuts off the gas, which requires the gun to be cycled by hand. This can be useful when using a suppressor or when a military operator does not want to leave behind fired brass. To move the valve to the suppressor or cut-off position requires that

a plunger at the front of the gas block be depressed. Speaking of duty usage, the piston-driven SIG716 DMR has already been adopted by some law enforcement and foreign military units.

Range Time

To test the rifle's accuracy, I mounted a Steiner Military 5-25x56mm scope using a LaRue Tactical QD mount. I fired a variety of loads from a bench at 100 yards using the supplied Harris bipod. While not every group measured less than an inch, I did manage to get some as small as about half an inch. This proves that the gun is very accurate and rivals many bolt-action precision rifles.

There is no question that the rifle is accurate. In fact, Sig Sauer test-fires SIG716 DMRs in a 100-yard test tunnel using a fixture to eliminate the shooter's ability from the equation. The factory test target is then shipped with the gun to show the rifle's accuracy potential. The group for this gun measured 0.39 inches for five rounds. For more information, visit sigsauer.com or call 603-610-3000. **SW**



ABOVE LEFT: The bolt carrier group is similar to that of a direct gas impingement gun except that the carrier has an integral boss instead of a gas key and is enlarged at the rear to prevent carrier tilt.

ABOVE RIGHT: The chrome-moly-vanadium steel barrel is finished with black oxide and has a threaded muzzle for suppressors.

BOTTOM LEFT: The SIG716 DMR ships with flip-up front and rear sights that are adjustable for windage and elevation.



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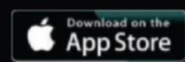


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(continued from page 12)

CIWS (close-in weapon system), a radar-guided, six-barreled, 20mm Gatling gun with an eye-watering 4,500-round-per-minute (rpm) rate of fire. The purpose of these weapons, regardless of their vintage, is to lay down an impenetrable curtain of lead to intercept any platform or projectile hurtling toward a ship with malicious intent.

Today's maritime defensive weapons are exceptionally capable and lethal, but they're not appropriate for every combatant in international fleets. Littoral combat ships, such as corvettes and patrol boats, that make up the majority of navies around the world are too small to carry many sophisticated weapons and even smaller systems such as the CIWS that can weigh up to 13,600 pounds—a real burden for hulls with narrow beams and limited displacement.

FN's Answer

Belgium's Fabrique Nationale d'Herstal, now FN Herstal, S.A., one of the world's premier military and commercial armaments producers since its founding in 1889, has addressed this issue by creating a family of "deFNder" Remote Weapon Stations (RWSs) that fills the bill for lightweight vehicles, armored vehicles and small ships. The systems also can be mounted statically for position defenses. Every deFNder provides remote capability around the clock that enables the operator to remain protected while firing. The Sea deFNder is a variant of the deFNder Medium system that weighs less than 450 pounds and is adapted for naval use. The system can utilize any FN machine gun ranging from 5.56mm NATO up to .50-caliber or 40mm automatic grenade

launcher rounds. This includes the FN M3R .50-caliber gun with a firing rate of 1,100 rpm. FN unveiled the Sea deFNder at the EURO-NAVAL exhibition in Paris in late October 2014, making the model a brand-new entrant in the maritime weapon market.

The Sea deFNder features a semiconductor charge-conducted device (CCD) gun sight module with infrared (IR) cooled or uncooled capability for aimed firing at night. The system contains an ammunition box to feed plenty of rounds into the weapon, and the operator can fire the deFNder with one hand or a control handle similar to those used on computer games. Specific naval modifications include sealed surfaces to withstand saltwater and sea-spray corrosion, seals to keep water out of the operating systems, maritime environmental qualification standards and a two-axis gyroscopic stabilization optimized for ship movements.

According to FN, the company already has received an initial order for the Sea deFNder, bringing the total number of deFNder systems to more than 1,300 for land- and sea-based operations.

Thomas Loper, vice president of Federal Operations at FN America, recently commented on the new RWS. When asked why the Sea deFNder stands out, he replied, "The deFNder RWS



"...IT INCREASES CREW PROTECTION, SITUATIONAL AWARENESS, FIREPOWER AND FIRING ACCURACY FOR NAVAL APPLICATIONS."



ABOVE: The Sea deFNder is specially sealed to keep out water and resist corrosion.

BELOW: The system includes an ammo box mounted on the right side.

provides optimized remote firing capability day and night while keeping the operator completely under armor protection, and it's easily integrated onto a variety of mobile or static platforms. Specifically, it increases crew protection, situational awareness, firepower and firing accuracy for naval applications.

"The Sea deFNder's service packages include everything needed for rapid deployment, including associated weapon(s), ammunition, technical documentation, technical support, operator's and maintenance training, and installation of the RWS onto the vessel," Loper added. "The system's open architecture facilitated installation for the .50-caliber FN M3R machine gun that fires at 1,100 rpm."

Modular Combat

FN began development of the Sea deFNder in 2010 after the deFNder Medium system was qualified for use on vehicle and aircraft platforms. The evolution of littoral threats, especially piracy in the Indian Ocean off East Africa and along the Pacific Rim, fueled the project, since a variety of ships, both naval and commercial, increasingly demanded defensive weapons that protected gunners from adversary fire, often intense on pirate vessels.

Loper noted that the maritime system's developmental schedule needed to incorporate open operating architecture and extended modularity to handle a variety of weapons, more flexibility for wider angles of operation, adaptation for the M3R machine gun and an integration of gyroscopic stabilization that compensates for hull motion with image stabilization and target tracking for exceptional accuracy. In addition, adapting the



The Sea deFNder's semiconductor charge-conducted device (CCD) gun sight module has an infrared (IR) cooled or uncooled capability for aimed firing at night.

entire system to the maritime environment and the impact of sea water and salt spray required toughening up nearly everything on the Sea deFNder to ensure it could stand up to the rigors of sea operations.

"All Sea deFNder technologies can be adapted to various caliber turrets," Loper added. "Specifically, the system can accept the FN M249 SAW light machine gun chambered in 5.56mm, the FN M240 medium machine gun, the FN M2HB-QCB, and the 40mm automatic grenade launcher. Switching between machine gun platforms takes only minutes and requires no specific tools.

"We're especially proud of the target tracking system on the Sea deFNder that makes firing from a moving vessel consistently accurate," Loper said.

"In addition to the Remote Weapon Station, FN provides everything the customer needs for installation and to configure it with the appropriate weapon type. Technical documentation and support makes maintenance and repair, if required, quick and efficient. Preventive maintenance is reduced to cleaning, greasing, visual checks and camera desiccants replacement. There are very limited specific tools required to maintain the system."

Into The Future


Given early sales, Loper is confident about the Sea deFNder's market prospects. "There are numerous prospects in Europe, Asia, the Middle East, Africa, and in North and South America," he said. Although he did not disclose the first customer by name, he added, "The order for the manufacture and supply of the first Sea deFNder units is from a NATO member navy." The system is available now for world maritime services, both navies and coast guards.

The Herstal Group, with its subsidiaries FN Herstal and Browning, along with its U.S. operation, FN America, is completing its 125th year of operation. Its headquarters are in Herstal, a suburb of Liege, Belgium, with offices and facilities in the U.S. and around the world. It designs and manufactures many of the world's best known and most popular military and sporting firearms as well as automatic weapons for multiple platforms and purposes, fire control systems and ammunition. For more information, visit fnhusa.com or call 703-288-3500. **SW**

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CAA GUN SHOT COUNTER

Described as the smallest shot counting and recording device available, the Secubit Gun Shot Counter (GSC) from CAA is designed to fit in the grip pocket cavity of Gen1 through Gen3 Glock pistols. It detects the number of shots fired by sensing vibration and records up to 500,000

shots. It shows the exact date and time of shots and computes the time between shots. It comes packed with the counter unit, PC USB and micro-USB device cables, a secure pin, an add-on spacer and a user manual. For more information, visit commandarms.com or call 866-611-9576.



HPR 110-GRAIN 300 BLACKOUT TAC-TX

New from HPR Ammunition is a 300 Blackout load featuring a 110-grain Barnes TAC-TX bullet. This load offers shooters a lead-free and mild-recoiling round that packs impressive downrange lethality and impressive accuracy. The round sports a muzzle velocity of 2,311 feet per second and a muzzle energy of 1,304 foot-pounds and comes packed in 20-round boxes. For more information, visit hprammo.com or call 928-468-0223.



MAGPUL MOE M-LOK HANDGUARDS

Expanding on its popular MOE series, the new MOE M-LOK handguard line from Magpul is designed as a drop-in replacement for standard AR/M4 firearms, with M-LOK slots at the 2, 6 and 10 o'clock positions. Available for rifle-, mid- or carbine-length variants, the handguards will work with both piston and direct gas impingement models. The new handguards combine affordable pricing with rugged durability. For more information, visit magpul.com or call 303-828-3460.



MAKLARBAK TTC-MAG R6

Dubbed the "smart mag" by the company, the new TTC-MAG R6 from MAKLARBAK features a follower that locks the bolt open when one round is left in the magazine. The company describes the magazine as offering competition shooters a much faster and motion-efficient emergency reload. When the gun locks open, drop the bolt on the round and then do a reload. The magazine features polymer construction and drop-free capabilities. For more information, visit maklarbak-usa.com or call 844-625-5272.



BOYDS LAMINATED AK STOCK

The Boyds laminated AK-47 stock features a 12.75-inch length of pull and Boyds' 0.5-inch-thick recoil pad. The two-piece handguard and the pistol grip match the multi-layer wood in the buttstock, offering a unique look with toughness and warp resistance. The stock, furniture and grip are designed for Romanian/Eastern European stamped receivers. Minor fitting may be required. Available in forest camo, nutmeg or pepper. For more information, visit boydsgunstocks.com or call 605-996-5011.





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